DOCUMENT RESUME

ED 419 472 HE 031 249

AUTHOR	Clagett, Craig A., Ed.
TITLE	The MAHE Journal, 1997.
INSTITUTION	Maryland Association for Higher Education.
PUB DATE	1997-10-00
NOTE	84p.; For the 1995 issue, see ED 394 365.
AVAILABLE FROM	Maryland Association for Higher Education, Prince George's Community College, Craig A. Clagett, 301 Largo Road K-231, Largo, MD 20774.
PUB TYPE	Collected Works - Serials (022)
JOURNAL CIT	MAHE Journal; v20 Oct 1997
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	Community Colleges; Developmental Programs; Distance Education; Educational Technology; *Educational Trends; Entrepreneurship; Futures (of Society); High Risk Students; *Higher Education; Occupational Therapy; School Business Relationship; Student Attitudes; Technological Advancement

ABSTRACT

This annual serial issue of the Maryland Association for Higher Education (MAHE) contains eight papers on issues and research in higher education at institutions in Maryland. The papers are: (1) "The Next Fifty Years of Maryland Higher Education" (Edward O. Clarke, Jr., chairman of the Maryland Higher Education Commission), which urges institutions to embrace change in the 21st century; (2) "Higher Education's Role in Workforce Development" (Patricia S. Florestano, Maryland Secretary of Higher Education), which argues that higher education has a key role to play in workforce development; (3) "The Origins of 'Entrepreneurialism' in American Higher Education" (Margaret Masson and Jim Westwater, both past presidents of MAHE), which asserts that higher education has become a corporate enterprise and that success for all organizations now requires them to become learning organizations; (4) "The Widening Gyre: Getting Ready for Information Age Learning in Maryland's Community Colleges" (Jon H. Larson), which discusses the creation and goals of the Maryland Community Colleges Technology Council; (5) "Assessing and Meeting the Technology Needs of Maryland's Community Colleges" (Craig A. Clagett), which presents results of a statewide technology needs assessment survey; (6) "The Maryland Community College Research Group: 1972-1997" (Hershel Alexander), which recounts the contributions of this group on its 25th anniversary; (7) "Student Perceptions of Distance Education Techniques in an Occupational Therapy Program" (Charlotte E. Exner); and (8) "Enrollment and Achievement of Underprepared Students: A Community College Case Study" (Craig A. Clagett), which explores the extent and outcomes of developmental education at a large Maryland community college. (Some papers contain references.) (DB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 419 472

The MAHE Journal

Volume 20 ♦ October 1997

Maryland Association for Higher Education

HE 031 249

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

Maryland Association for Higher Education

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1 2

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

The MAHE Journal

Volume 20 ◊ October 1997

Maryland Association for Higher Education

Editor.....Craig A. Clagett
Prince George's Community College

Design.....Patricia K. Diehl
Prince George's Community College

The Maryland Association for Higher Education

1996-97 Executive Board

Officers

Gilbert Ogonji, President
Coppin State College

Glenda Henkel, President-elect
Towson University

Rosemary Wolfe, Past President
Anne Arundel Community College

Timothy Sparklin, Treasurer
University of Maryland Baltimore County

Margaret Masson, Secretary
Towson University

Members at Large

Katherine Beardsley
University of Maryland, College Park

Mary Gartner
Frostburg State University

Mary Hines
Dundalk Community College

Barbara Mayo-Wells
University of Maryland University College

Robert Wiedefeld
Prince George's Community College

Vera Zdravkovich
Prince George's Community College

The MAHE Journal is published annually by the Maryland Association for Higher Education (MAHE). MAHE comprises individuals and institutions committed to the advancement of higher and adult education in Maryland. MAHE, through its conferences and publications, promotes communication among all sectors of higher education in Maryland.

Contributions to **The MAHE Journal** are welcomed. Manuscripts should be typed, double-spaced, and should include the name, title, institutional affiliation, and telephone number of the author. Upon acceptance of the manuscript, the author will be asked to submit the manuscript on diskette. Mail all editorial correspondence to Craig A. Clagett, Office of Institutional Research and Analysis, Prince George's Community College, 301 Largo Road K-231, Largo, MD 20774. Electronic communication should be sent to cc5@pgstumail.pg.cc.md.us.

Contents

Foreword v

The Next Fifty Years of Maryland Higher Education — Edward O. Clarke, Jr. 1

Higher Education's Role in Workforce Development — Patricia S. Florestano 7

The Origins of "Entrepreneurialism" in American Higher Education — Margaret Masson and Jim Westwater 11

The Widening Gyre: Getting Ready for Information Age Learning in Maryland's Community Colleges — Jon H. Larson 16

Assessing and Meeting the Technology Needs of Maryland's Community Colleges — Craig A. Clagett 29

The Maryland Community College Research Group: 1972 - 1997 — Hershel Alexander 35

Student Perceptions of Distance Education Techniques in an Occupational Therapy Program — Charlotte E. Exner 55

Enrollment and Achievement of Underprepared Students: A Community College Case Study — Craig A. Clagett 67

Foreword

Edward O. Clarke, Jr., chairman of the Maryland Higher Education Commission, leads off Volume 20 of **The MAHE Journal** with a thought-provoking look at the future of Maryland higher education. Based on his address at the 50th anniversary luncheon held in conjunction with MAHE's 1996 conference, Mr. Clarke challenges Maryland's higher education leaders to embrace the 21st century. Failure to change could result in today's colleges and universities becoming "magnificent, but useless remnants of the past" not unlike the old fortresses of Salzburg and Wurzburg.

Maryland Secretary of Higher Education Patricia S. Florestano argues that higher education has a key role to play in workforce development. Dr. Florestano continues the dialogue on higher education's contributions to Maryland's economic development initiated by Governor Glendening in Volume 19 of **The MAHE Journal**.

Two past presidents of MAHE, Margaret Masson and Jim Westwater, assert that higher education has become a "corporate enterprise." They trace the evolution of "entrepreneurialism" in American higher education, while also arguing that business is becoming more like higher education in that success requires all organizations to become learning organizations.

The successful learning organizations of the future will embrace technology. Jon Larson discusses the creation and goals of the Maryland Community Colleges Technology Council. Craig Clagett presents the results of a statewide technology needs assessment survey conducted by this new community college affinity group.

Hershel Alexander recounts the contributions of one of the oldest Maryland higher education affinity groups on the 25th anniversary of the Maryland Community College Research Group.

It is traditional for recipients of MAHE research grants to report on their studies in **The MAHE Journal**. Charlotte Exner obliges with her summary of student opinions of distance learning methodologies in occupational therapy instruction. The journal concludes with a second research article, written by the editor and exploring the extent and outcomes of developmental education at a large Maryland community college.

As I conclude my third year as editor, I note two recurring themes in the three volumes: economic development and technology. I would like to see dialogues on these themes continue in future volumes, and I invite further articles on a third—the role of remediation in higher education. Over half of Maryland's college students attend open-admissions institutions, with significant proportions requiring developmental education. Maryland's future economic health will be influenced by the success of today's "at-risk" students. MAHE invites manuscripts describing programs with demonstrated success in promoting achievement among underprepared students.

Craig Clagett
Editor

The Next Fifty Years of Maryland Higher Education

Edward O. Clarke, Jr.

It would be difficult for you career educators to appreciate just how profoundly I respect all of you—and have for many years. Although the practice of law came to be my career profession, I turned from consideration of a full-time academic career only with hesitation and a nagging sense of loss.

Happily, nearly fifteen years ago, time and circumstance generously afforded me the surprise opportunity to become intensely involved in matters of higher education as an almost daily avocation. My resulting experiences have only amplified my respect for your scholarly community. For example:

- Inspirational experiences studying a PBS report of the Frederick Douglass Academy in Harlem and the incredible African-American woman who surrendered one of the top positions in the New York city school system to lead and shape it.
- Stretching experiences with the higher education community in this state and in this room.
- Humbling experiences with the true, usually unrecognized, educational heroes of the present who are building the future. I include among these the shapers of rationalized and integrated K-16 programs, champions of early intervention, advocates of high standards and noble aspirations, and espousers of challenge and motivation, particularly in science and mathematics. These are academic heroes who risk their own status and peer acceptance by courageously reexamining inherited practices and respectfully offering new, more appropriate behaviors for new generations, such as curriculum reforms in teacher education and professional development schools.

My ever enhanced respect—and the confident hope and trust in your profession it necessarily engendered—encouraged me to accept your invitation to discuss with you briefly the *future* of Maryland higher education—say, in the next fifty years—in this year of the fiftieth anniversary of your association.

One of the most quoted, accidental educators of recent time, Yogi Berra, astutely observed "predictions are always difficult, especially when they're about the future." But, predictions and long range plans serve a valuable role, if utilized with intelligence.

Dwight Eisenhower, in his military roles, constantly emphasized detailed, long range planning and replanning. It was his belief that, although one could not know exactly what *would* happen, one would have considered and confronted what *could* happen and thus be better able to deal with reality when it presented itself.

When we peer ahead, we can be confident that the future of higher education will be primarily shaped by its response to the challenges it confronts. Few challenges, then probably few changes. Massive challenges, then likely massive changes. Looking at probable challenges should lead us to the shadows of a Plato's cave of the educational future. This then will be the direction of this synoptic speculation.

Understandably, there is a predilection among academics to disregard futurists—particularly if the mispredictions of the millenialists of the past are brought into present focus. On the other hand, there are ample examples of the failures of many past thinkers to read obvious communiques from the future. I was recently impressed with the danger of this while reading Thomas Cahill's beautifully crafted, concise bestseller, *How The Irish Saved Civilization*. I found myself considering again the failure of the fourth and fifth century Romans to see then what well might today be the overarching challenges to our own society and, thus, challenges for education. After all, education is both partially a product and a principal ingredient of the society in which it occurs.

Take a brief glance at possible historical parallels to our own present day realities. Dr. Cahill describes the early fifth century Roman empire:

> There are, no doubt, lessons here for the contemporary reader. The changing character of the native population, brought about through unremarked pressures on porous borders; the creation of an increasingly unwieldy and rigid bureaucracy, whose own survival becomes its overriding goal; the despising of the military and the avoidance of its service by established families, while its offices present unprecedented opportunity for marginal men to whom its ranks had once been closed; the lip service paid to values long dead; the pretense that we still are what we once were; the increasing concentrations of the populace into richer and poorer by way of a corrupt tax system, and the desperation that inevitably follows; the aggrandizement of executive power at the expense of the legislature; ineffectual legislation promulgated with great show; the moral vocation of the man at the top to maintain order at all costs, while growing blind to the cruel dilemmas of ordinary life—these are all themes with which our world is familiar, nor are they the God-given property of any party or political point of view, even though we often act as if they were. At least, the emperor could not heap his eco-

> nomic burdens on posterity by creating long-term debt, for floating capital had not yet been conceptualized...

Do these words strikingly state the first massive challenge of the future? Or are they merely a superb statement of previously identified themes? How could these words be possible stimuli to today's educators? Are we not simply trapped in the inexorable flow of historical events with only limited and arguably ineffectual alternatives? I think not.

Despite parallels between the past and the present, I believe that our present enjoys remarkable advantages over the past. America has a political system in place—often abused, but in place—capable of effecting revolutionary change without political revolution. America also has in place access to a reasonably clear picture of the past and of the avoidable mistakes of our ancestors.

But, most importantly, America has in place an educational system of broad accessibility—a Roman road of the mind, if you will—that can effect revolution of citizen thought and response without fighting in the streets or barbarian invasion. Here in the United States we have what the Romans and many other failed societies did not have—this remarkable educational system. Just recently, Owen Harries, Editor of *The National Interest*, noted that:

> The real source of America's global leadership is not the power of its government but the energy, inventiveness and initiative of its society. Its great economic companies, *its universities*, its Silicon Valleys and (for better or worse) its cultural and entertainment industry—it is these that will insure America's global leadership into the 21st century. [Italics supplied.]

Some of education's most well positioned leaders are in this room. Consider: the nationally recognized programs of excellence at the University of Maryland at College Park and at Baltimore County; the unique leadership role of Morgan State University in the African-American community; St. Mary's College of Maryland, a public college with peer institutions among the nation's finest private colleges; University College with its pathbreaking positioning as a proven "virtual" university; The Johns Hopkins University with international prominence in medicine and applied physics research. The specific mention of these few is not meant to abbreviate in any way the impact of all constituents of this incredible Maryland higher educational system, as influential in human affairs as any such system in the world, clustered as it is about the capital of the world's leading nation.

You are the leaders who are challenged today to begin a revolution in the culture of American higher education. This could be the "yeasting" for American society to effect a revolution in itself and finally achieve a "culture" adequate and appropriate to its potential and its premises. This could be the survival response to the compounding societal and environmental challenges cascading into the next century.

Moving forward from this broadest challenge, review a short list of significant and previously unseen realities—beyond the control of educators—forcing reorienting changes in the way educators both view themselves and structure their world:

1. real, severe, and probably permanent budgetary constraints;

2. rampant technological innovation;
3. societal demand for trained, productive workers at the highest educational levels;
4. demographics (the "echo" of the "baby boom");
5. exploding educational costs to the student;
6. restructuring of needs and distribution of trained specialists within occupations and professions (e.g., business and health care);
7. global competition;
8. global trade and commerce far beyond present levels;
9. China's wildly frothing economic growth and rising political power;
10. the meteoric expansion of the Latino population and Latino culture in the U.S.;
11. the decreasing importance of geographical location, size, and appearance of physical sites (bricks and mortar), libraries with printed volumes, and other traditional evaluative measurements for institutions of learning;
12. unaddressed and growing problems surrounding faculty recruitment, compensation, retention and career-long growth;
13. "retooling" faculty to deal with subject matter obsolescence; and
14. shrinking resources per student against greater educational demands per student and increasing numbers of students.

These statements are neither hyperbole nor speculation. They are realities far more developed than we feel comfortable or secure recognizing. Educators do not and cannot control these forces.

Will educators be the authors and shapers of the counterbalancing, inevitable changes—or their victims? Educators will decide this by what they do now—at the next departmental meeting—at the next faculty senate meeting—on the next occasion when a decision maker begins to say, "No, the academy does not do it that way. In a research institution we only do it this way or not at all," or when we quietly think, "They [society? trustees? mature students?] can't tell scholars how to do that."

I am confident that, in the long pull, educators will elect to be authors and shapers. The question is whether that determination is made while the choice still exists and while educators are still left free to play those roles by the bottom line judgments that society collectively will make in conclusive ways, some subtle, some axe-like. For example, a considered and reasonable act of the sovereign, in the form of the legislature, to eliminate a program, a department, or even an institution cuts cleanly and decisively through overextended discussions and argued traditional privileges.

So, there are axial challenges and there will be revolutionary responses. They will affect education. Educators must concern themselves with shaping those responses and resulting changes.

The consumer/student will rapidly design the product demanded. Educators' challenge is to anticipate that demand and meet it with an offering that serves the consumer/student while preserving and incorporating the best of the past and the present. Educators that do so will capture that market and be permitted by the larger societal forces to continue to function as educators.

This has not been the picture in the past. But today some or all of the product we offer can be offered by others in heretofore protected markets. For example, the virtual university will appear—in some form—for some markets. The Western Governors' University on the Internet—with the support of 13 western states—has more than just a chance of success.

Will a prospective Maryland college student of the near future choose to stay in Maryland and nevertheless enroll in the Western Governors' University? Phoenix University? The California State College System? Because of course availability? Because of cost? Because of burdensome or unnecessary administrative foolishness? Because of convenience? Will the alternatives to the Maryland college work better under all the circumstances for the working single parent?

Consider another model. Could a college student take half of required college courses by distance learning? Would the student elect to experience lectures by one of the most inspired and charismatic professors of western culture or philosophy in the world? Where will the student find the best survey course on Latino culture? Isn't that just what will be needed? Would you elect to take that course at Oxford or Cambridge? Is there a good Asian economics course—somewhere in the world? Can this competition be met with teaching assistants? Don't you really need the very best lectures available through technology coupled with the very best mentoring available from scholars of breadth and depth with terminal degrees? Will this be the Oxford or Cambridge of the future?

The "academic rigor" and "intellectually keen and inquisitive minds" we so readily describe at present in our catalogues may be subject to honest and close reevaluation. To produce an adequate "educated person" for the next century will probably require the best of course content and lecture inspiration coupled with the intellectual push and pull that only one-on-one interaction can provide. Will the interaction be electronic mail? Voice mail? Web site? Will the faculty be prepared? Will the institution be prepared to prepare the faculty?

The implications of all this are abundantly clear. A wrenching impact on much we consider sacred—on course offerings, on faculty needs, on building plans, on a department's plans for the future. What will a professor claim as his/her specialty? Will it really be competitive? Are any of these issues on your meeting agendas?

It is a time to return rapidly to basics to create a basis for decision making. We should work quickly to review our major educational goals—what we are about—and then translate those goals into coordinated actions, placing each institution—in fact, each department—in some reasonable posture to deal with the initial stages of this unavoidable revolution in the academy.

There are subtle symptoms that educators are beginning to comprehend the scope and magnitude of the possible changes. As increasingly large numbers of post-baccalaureate products are needed by society, society will define more exactly what it really requires. For example, will the Ph.D. be the same as it traditionally has been? Perhaps so, but it seems inevitable that new doctoral programs will be required—something akin to first professional law and medical degrees. This would provide a vehicle to develop highly educated specialists who may have no desire to enter a career of research scholarship—only constant self re-education. A recent article in The New York Times Magazine discussed the subject. Without making a personal final judgment on the matter, I note that the heading of the article raises the immediate question whether the current Ph.D. scenario is appropriate to the societal and individual needs purportedly being served: "Getting a Ph.D. today means spending your 20's in graduate school, plunging into debt, writing a dissertation no one will read—and becoming more narrow and more bitter each step of the way."

As you probably know, the Yale University Press is reprinting some of the classics of western civilization in a series titled "Rethinking the Western Tradition." The first selection was Matthew Arnold's *Culture and Anarchy*. The second, and current selection is John Henry Newman's *The Idea of a University*. Interesting selections. Going back to basics.

The academy is being pulled into the mainstream. In a recent conversation with Mr. Jeff Welsh on the Maryland Higher Education Commission's staff, Mr. Welsh used the Maryland river town of Chestertown as a visualization of the process. Certainly there are few scenes more beautiful than the approach up the Chester River to that picture of the past. The great houses of former merchants and plantation owners line the river banks. The town sits behind. Then, on the rising ground above the town—originally quite removed—Washington College has stood since the American Revolution. But today, it is no longer removed, but surrounded by the town—and non-student citizens cross its quadrangle as a part of their daily lives.

Speaking of institutions on hills, some of you may have visited the old fortress towns of Salzburg and Wurzburg at one time or another. Truly magnificent in the morning sun are the great hulks of the brick and stone fortresses on the steep hills above the cities. Once active with the princes and prince-bishops of their day, they serve now only as museums—magnificent, but useless, remnants of the past. Perhaps this is so because they were designed for fighting—for defensive fighting to maintain the status quo—perhaps because they pushed through time sustaining oppressive and unnecessary traditions of the past. Throughout their active lives these structures were constantly enlarged—enlarged, but never redesigned, all the while holding firm to the original premises of their construction, the same format, the same worldview, the same anticipated enemies, always looking in the same direction.

Educators can learn from these symbols. There are not centuries of sameness ahead—not decades—only a very few years within which to address the challenges now clearly in view, to preserve what is best and produce what is needed.

Edward O. Clarke, Jr. is the chairman of the Maryland Higher Education Commission. He previously served as a member and chairman of the Board of Trustees of St. Mary's College of Maryland. This article is his emended address presented at MAHE's 1996 fall conference in Baltimore.

Higher Education's Role in Workforce Development

Patricia S. Florestano

Workforce development is one of the most complicated issues that people in higher education face today. There are extreme differences of opinion. Some violently object to the idea that our campuses and our faculty are in the business of workforce preparation. To them, the idea is repugnant. To quote from a recent study by the Business-Higher Education Forum, some faculty believe "that the life of the mind need not be *sullied* by the world of commerce and finance." At the other extreme is the view that college exists to prepare young men and women for work and to retrain adults, and there is no other justification for spending taxpayers'—or parents'—money.

Different states approach the matter in different ways. When the Maryland Higher Education Commission organized a summit of business and higher education leaders last fall, we conducted an informal survey of state higher education agencies to learn if any states had business-higher education partnerships. Of those who replied, several said that it was difficult to arouse any interest among business executives. Attempts had been made—and failed. The state of Virginia stands out as an example of extreme, and benign, business involvement in higher education. A group of influential CEOs, organized to fight for more funding for higher education, has remained in business to strengthen the ties between business and academe and to make sure that colleges are responsive to the state's economic needs.

Higher education in South Carolina, by contrast, got more than it bargained for. Not only did the business community take an interest, they took over, forcing through the legislature a new law that demands strict financial accountability of public higher education through total performance funding. Not only do college administrators in South Carolina have to be businesslike, they have to run their campuses like businesses.

Maryland seems to fall in the middle. Our businesses and business executives are supportive of higher education, but that support is moderate. There is no financial crisis and no crisis of quality, so there is not a strong push for businesses to do more—to create an organization

like the one in Virginia, for example. It is also fair to say that we seem to be taking the middle road in Maryland on the question of purpose. While there is a general expectation of responsiveness to economic needs and a legislative expectation of accountability, the basic role of the academy in society is not being questioned.

It is fair to say that this peaceful coexistence between business and higher education is somewhat misleading. The system works as well as it does, not because the business world regularly communicates its needs and enters into the discussion about what should comprise the modern undergraduate degree, and not because we in higher education regularly solicit their views and tailor our efforts to society's economic needs, but because of the students. If the system works, it is because the great majority of the students who populate our campuses are smart, ambitious, adaptable, problem-solving people. If they show up for work the first day of their career and find out that what they learned in college isn't exactly what they need, then they adapt. They start learning all over again if necessary.

When the Business-Higher Education Forum of the American Council on Education asked recent graduates about their college experience, they had good things to say about their education. But they had some complaints, too: poor guidance about academic and career options; faculty with no practical experience in the business world; poorly organized courses and professors who simply went through the motions of teaching; and little education about the corporate real world.

The same study, which was published under the title of *Spanning the Chasm: Corporate and Academic Cooperation to Improve Work Force Preparation*, also asked college presidents and corporate CEOs about workforce preparation. This is what higher education leaders said:

- Business wants major changes in too short timeframes.
- Business provides vague descriptions of the skills and knowledge they seek in new employees.
- Business's message is inconsistent from one level of organization to another.
- Business doesn't understand the difference between education and training.
- Business puts too much focus on profit.

Not surprisingly, corporate CEOs had some complaints about colleges and universities. They said:

- Colleges are unwilling to change in any timeframe.
- Academicians take a narrow view of disciplines.
- Academicians fail to consider career needs.
- Academicians expect support without accountability.
- Colleges are inefficient.

This is not exactly a mutual admiration society.

Now add one other element to the discussion: the task force that wrote the report asked business leaders about graduates' deficiencies. This is what they said:

- Graduates lack communication skills.
- Graduates do not have the ability to work in teams.
- Graduates are inflexible, uncomfortable with ambiguity and diversity, lacking in understanding of globalization and its implications, and lacking in adequate ethics training.

Unfortunately, I did not find these statements surprising. I am not surprised that corporate CEOs felt under-served; that some faculty felt no obligation to accommodate the business world while other faculty (mostly in professional schools) were attuned to the job market; that college administrators were troubled by the ambiguous demands of business; or that students were often unprepared for the real world. Nor do I believe that we will ever fully solve these problems. Business puts a premium on flexibility and responsiveness. Business operates in an increasingly sophisticated, global marketplace, with increasingly sophisticated technologies. Colleges and universities—rightly, I think— place a premium on consistency and a body of learning that does not change without good reason. One corporate training director is quoted in the report as saying, "I don't think these kids are any better or any worse...It is just that our expectations for what they will be able to do are so high today." The problem won't go away, as I said.

But the need to attack the parts of the problem that we can solve is significant. The economic well-being of Maryland and the rest of the United States is dependent on our ability to produce capable graduates in our colleges. The number of college-trained workers needed by the modern economy will increase throughout the foreseeable future. It is important for us to remember that the vast majority of our students probably views education as a means to an end, that end being a good job and a rewarding career. Along the way, we hope to inculcate a love of learning and to create thinking citizens. We must never forget, however, that we are preparing men and women to work.

To me, the key to succeeding in preparing an exceptional workforce is the set of relationships that we forge with the private sector, so that we can learn from each other. If, for instance, we are sending into the world graduates who lack communication skills, we have to fix that. If graduates feel ill-prepared to make career decisions—and I believe students have a substantial obligation to inform themselves about the world they are preparing to enter— then we need to find ways to help them. One of those ways is the increased use of internships. This is an area where business and higher education have equal responsibility and can work together quite effectively.

Another area that is loaded with potential is our relationship with primary and secondary education. By the simple measure of aligning high school graduation requirements and college entrance requirements—one of the key elements of the K-16 initiative in Maryland—we will take a giant leap forward in preparing students to earn a degree and start a career. When Chancellor Langenberg, Superintendent Grasmick and I agreed to launch the K-16 Initiative in Maryland, we were cautious in putting together an agenda. But I am convinced that higher

education can make a substantial, long-term contribution to public education in the state, and thus to the very important goal of preparing the next generation for careers. To take another example, Maryland's teacher education reform movement was created to give greater emphasis to future teachers' academic preparation and to increased classroom experience as part of their training. This initiative will have a significant, long-term impact on the preparation of graduates in that field.

I would like to conclude with what should not be misconstrued as a wistful observation. For someone who has been in and around higher education as long as I have been, it is fascinating to think that we are even having a discussion about the role of higher education in workforce development. In the "good old days," which was not all that long ago, higher education operated at some level removed from the world of commerce and industry. We taught a relatively small proportion of the workforce—teachers, doctors, lawyers, people who would run businesses. Our purpose was to educate men and women, and when their education was finished they left; our subsequent connection with them was slight, except when we solicited their financial support. How things have changed.

When I was invited to speak today, it never occurred to me that I would have said that higher education does not have a role to play. We have come too far, and higher education is simply too important. It is not a luxury, it is a necessity.

One final thought—if we are tempted to say, "Let business come to us," we need to resist that temptation. I have been working with business executives to organize a business-higher education coalition along the lines of the Virginia model. It has been slow going because, as I said at the beginning of my remarks, we are not experiencing a shattering crisis of funding or quality, and busy CEOs seem to respond best to crises. But that is not a reason to stop, because the need is real. The need for higher education to play a vigorous role in Maryland's economy is real, too, and we should be proactive about that role.

Patricia S. Florestano is the Secretary of Higher Education for the state of Maryland. This article is based on her address at MAHE's 1997 Spring Symposium, Catonsville, Maryland.

The Origins of "Entrepreneurialism" in American Higher Education

Margaret Masson and Jim Westwater

In the closing years of the 20th century, American higher education has emerged as a corporate enterprise, congruent in all major aspects with free-enterprise capitalism. It is a development well expressed by the term "entrepreneurialism," meaning that the values and behaviors of the marketplace have been applied to the activities and objectives of higher education. As recently as three or four years ago, "entrepreneurialism" would probably have meant a course in the MBA curriculum. Now it is widely used to describe a type of behavior with its own practitioners and critics in academia. What are the origins of entrepreneurialism in American higher education and why did it develop?

This essay attempts an answer by investigating the historical and political origins of entrepreneurialism in higher education. It is not intended to contribute to the debate over the merits of entrepreneurialism per se. Instead, it suggests that demographic and geo-political circumstances after World War II nurtured entrepreneurial higher education in the United States. These circumstances caused a massive expansion in the size and scale of American higher education, along with a more active role for government. Increased government involvement meant more government oversight and a demand for accountability which was often measured by parameters adopted from the business world.

As the geo-political issues of the Cold War era faded, they were replaced in the 1980s by concerns about whether the United States economy could compete effectively in the global setting. Discussion focused on the training of the American workforce and whether the elementary and secondary school system could meet the challenge. What if it could not? Should colleges and universities be expected to compensate for the deficiencies of K-12 education?

Business as well as government shared an interest in these questions and their answers. Corporate attention therefore turned toward higher education; interest changed to involvement. Employers in the 1980s frequently offered post-secondary educational benefits as part of the employee compensation packet. Generally, this meant paying the tuition bill at a

nearby college. In the 1990s, however, more business organizations have provided in-house training and education for their workers instead of subsidizing their college courses. Other organizations have moved beyond the basics to offer advanced-level skills that rival the graduate and professional credentials received from colleges and universities. The corporate university has emerged. Some universities have appeared that are expected to turn a profit for their private owners.

In responding to this competition from the private sector, the so-called "not-for-profit" colleges and universities have themselves adopted corporate values and behaviors. They have become more entrepreneurial.

Let us look more closely at education in the years from 1940 to 1990 to analyze these developments. Without a doubt, the most striking phenomenon is the growth in the scale of American higher education. The G.I. Bill, enacted in 1944, marked the beginning of this growth. It is estimated that no more than nine out of 100 young people attended college in 1939. That rate almost doubled to 16 out of 100 by 1947 (Skocpol, 1996). A total of 2.3 million students attended two- and four-year institutions in 1947. In 1970, the number was 8.5 million and involved more than half of all high school seniors (Lucas, 1994). The growth was fed by the fact that students stayed in college longer (including through post-baccalaureate education), and by the sheer number of the baby-boom generation.

Another important demographic change has been a gradual shift towards a more truly representative college population. The G.I. Bill was disproportionately used by white males, but legislative initiatives in the 1960s and 1970s resulted in more women and more racial minorities obtaining higher education. With the rise of part-time study in the 1980s, greater numbers of adults entered college, helping to raise the mean age of students while manifesting the phenomenon known as "life-long learning."

Expanded student enrollment meant that the number of colleges and universities would have to grow. Community colleges opened since the Second World War added a new tier of two-year colleges. The total number of colleges and universities stood at around 1,800 in 1947. By 1970 there were 2,556 post-secondary institutions in the United States. In 1991 there were 3,601(U.S. Bureau of Census, 1996).

The geo-political situation between 1945 and 1990, with a Cold War followed by global economic competition, served to highlight the importance of American higher education in the view of the federal government. During World War II itself, 83 percent of the nation's total research budget in the natural sciences came from the government (Brubacher and Willis, 1976). In 1950, federal agencies spent $150,000,000 on contract research, most of it performed in the universities. This number was $450,000,000 in 1960, out of a total research budget of $750,000,000. Expenditures such as these were justified by the global struggle against communism. But the rationale of national defense covered additional programs affecting higher education, such as the Fulbright Act. In 1958 the National Defense Act itself provided financial assistance to students in programs deemed to be of national importance.

The federal government had shown itself willing to finance the education of certain students; yet the practice was seen as the means to an end justified by national security. Between 1965 and 1972, however, an important change occurred as the government assumed a more direct

role in post-secondary education. The Higher Education Act of 1965 provided federal financial aid to undergraduate students simply because affording them the opportunity to attend college was seen as a worthy end in itself. The government was also authorized to give funds directly to colleges and universities to enhance their facilities and resources, and to enable them to achieve community goals. The Higher Education Act of 1972 expanded student aid and gave more money to colleges and universities but with no strings attached. Thus, the federal government became the principal funding source for higher education.

But higher education proved to be prodigiously expensive. Steep price inflation in the 1970s strained traditional sources of higher education funding such as endowments and tuition revenue. At the same time, inflation eventually undermined the ability of governments to raise more money for education through taxes. Colleges and universities were forced into cost-cutting postures. Surveying this dismal scene, Clark Kerr, chairman of the Carnegie Commission on Higher Education, predicted that American higher education would run a $26 billion deficit by 1980, and that even if the federal government increased its aid to colleges substantially, colleges would need to save at least $10 billion through retrenchment and increased efficiency to break even (Brubacher and Willis, 1976, p. 384).

Like other areas of American life in the early years of the 20th century, higher education had been affected by studies in industrial efficiency pioneered by Frederick W. Taylor (Brubacher and Willis, 1976). But it was the introduction of the computer in the 1970s which made it possible to scrutinize business processes and to introduce rational planning and management to the campus. Private institutions would be forced along this path by their precarious finances. Public institutions would be pushed in this direction by the legislators and businessmen who took it upon themselves to oversee all levels of education in the name of taxpayers.

Another instrument for achieving accountability was the state coordinating board. These came into their own in the 1970s and 1980s in California and New York and have been emulated elsewhere. With the efficient use of resources as their goal, coordinating boards favored strong control, centralized planning, and the elimination of "duplicate" programs and facilities. These were precisely the principles of management then popular in the business world.

With the limits of government funding having been reached in the late 1980s, colleges and universities looked again to the private sector. A relationship that would have been viewed with suspicion ten or twenty years before was now hailed for its potentially mutual benefits. Corporate partnerships, business alliances, technology transfer, contract training — all have become desirable features of higher education in the 1990s. Administrators and faculty have adopted the language, the practices, and many of the values of the marketplace as they shape teaching and learning for the new century. And students have voted with their feet by gravitating to those majors that provide the greatest potential for employment. This is another sign of entrepreneurialism in American higher education.

Private sector employers of undergraduate and graduate degree holders have noted the more hospitable campus atmosphere and have embraced the opportunity to influence the curriculum. Having lost faith in the ability of the primary and secondary schools to provide workers with the requisite basic skills and attitudes, some employers see their best hope for

achieving a well-qualified workforce in working closely with providers of post-secondary education.

Community colleges have traditionally offered applied, skill-based courses that would meet employee needs. But the growing need for employee training and the swift pace of change may over-reach this relationship. According to a recent survey by the National Association of Colleges and Employers, employers in 1995-96 hired 23.5 percent more college graduates than in the preceding year (Baker, 1996). Apparently, these gains were not confined to the "high tech" areas but extended into the service and manufacturing sectors as well. As hiring increases so does the need for employee training. Non-traditional alternatives for instruction are therefore being tried, including distance education to bring instruction to the student instead of the other way around. A logical next step is for more courses to be offered at the work site, with the instructor traveling from the campus to the company training center. Community colleges have provided on-site training for many years; senior institutions can be expected to follow.

The huge price tag for workforce training would alone compel a search for cost-effective solutions. In 1995 *Training* magazine found that U.S. companies spent over $52 billion annually to upgrade the skills of nearly 50 million employees (Johnson, 1996). The Motorola Corporation found it more efficient to open its own university. So did other well-known corporate giants, such as Disney, Hart Schaffner & Marx, and McDonald's. It is estimated that more than 1,000 corporate colleges have grown up in recent years. The ultimate evolution is seen in the University of Phoenix, a proprietal, for-profit institution catering to adult learners which is experiencing phenomenal growth. This, too, is entrepreneurial higher education.

Today, the U.S. system of higher education operates in accord with the model of corporate capitalism. As higher education is more and more shaped by corporate needs and values, its focus is more applied to the world of work. To that extent, the business of higher education is becoming business. And today's high technology corporations operate in a similar fashion to America's colleges and universities. They are all learning organizations engaged in entrepreneurial higher education.

References

Baker, A. (1996). Business, education develop ties in producing more potential hires. *The Kansas City Business Journal*, 14 (16).

Brubacher, J. and Willis, R. (1976). *Higher Education in Transition: A History of American Colleges and Universities, 1636-1976*. New York: Harper and Row.

Johnson, S. (1996). Corporate colleges help employees increase skills, output. *Mercury Center San Jose Mercury News*, Nov. 4.

Lucas, C. (1994). *American Higher Education: A History*. New York: St. Martin's Press.

Skocpol, T. (1996). Delivering for young families: The resonance of the GI bill. *The American Prospect*, 28, Sept.-Oct.

U.S. Bureau of the Census. (1996). *Statistical Abstract of the United States: 1996* (116th ed.). Washington D.C.

Margaret Masson is assistant director of the office of research administration at Towson University and served as MAHE president in 1994-95. Jim Westwater is associate dean of the College of Notre Dame of Maryland and served as MAHE president in 1993-94.

The Widening Gyre: Getting Ready for Information Age Learning in Maryland's Community Colleges

Jon H. Larson

Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the center cannot hold;
Mere anarchy is loosed upon the world . . .

W.B. Yeats
The Second Coming

Information technology will ultimately and inevitably change college-level teaching and learning in profound and fundamental ways. Higher education generally, and community colleges in particular, face very serious threats to their future well-being as technology-induced change affects their traditional missions, roles, and functions. These conclusions were the result of preliminary research I conducted in the early spring of 1996 on the potential implications of Information Age technologies on my institution, Frederick Community College.

Community colleges are facing a financial problem, an organizational problem, a technology-training and development problem, and a fundamental shift in our students' learning needs and styles. Rapidly accelerating costs for cyclical technology renewal are creating substantial new financial demands on all colleges and universities. As the installed technology base is broadened and more technologies are added to enable us to accomplish more, be more productive, enhance our teaching effectiveness and make student learning richer and more enjoyable, the cyclical renewal costs spiral upward in a "widening gyre." We are becoming ever more dependent upon technology to deliver education and training; with each new enhancement, the greater our need grows to keep that technology up-to-date and competitive with the marketplace in which our students work or expect to work.

Maintaining Competitiveness in the Information Age

Intuitively, the need seems clear for community colleges to become and remain competitive in providing opportunities for their communities to learn about and use Information Age technologies. For employers and employees alike, there is increasing pressure to improve the ability to accomplish work effectively in a technology-driven world. In every community across Maryland, business, government, and industry employers and employees are the principle customers, clients, partners, and students of the local community college. For Maryland community colleges to maintain a reputation for excellence and a commitment to quality, it is imperative that they significantly improve their learning systems, and the capability to use them effectively. This means providing widely varied learning opportunities for existing students and altogether new learning modes for students in the new markets that community colleges are likely to serve in greater numbers in the future. It means establishing flexible alternatives to traditional campus settings and delivering mediated instruction via the Internet and other distance education networks, both for students enrolled in credit and non-credit, degree and continuing education programs. Students now enroll at community colleges, whether full-time or part-time, expecting the latest information technology and distance learning services to be available to them. Many students now concurrently enroll in four-year institutions and community colleges, as well as through summer schools, intersessions, and weekend college programs. What they experience at one institution, they expect at the other. To maintain enrollment balance within the segments of higher education and to provide enriching educational experiences in reasonable parity, independent colleges, four-year public institutions, and community colleges must all be able to provide ready access to the knowledge resources of the world via information technology.

Enhancing Technological Capability. To sustain a competitive presence in what is rapidly becoming a brave new world of student learning will require that community colleges have the latest and best technology available in their classrooms and labs. A competitive presence requires access to this technology from remote sites at state-of-the-art speeds and bandwidth to permit the full versatility and power of color, motion, sound and data to enrich our students' learning experience. The Information Age learning environment will obligate community colleges to help their students overcome the disadvantages of distance and the constraints of time, transportation and cost that are commonplace in their busy lives, filled with work and family obligations.

Serving Emerging Markets. The brave new world of learning in the Information Age also raises the prospect that the greatest potential future student enrollment growth for community colleges will develop in markets that are quite different than the ones we now principally serve. Nearly every day, the feedback from local area business and industry leaders is, "We need employees who can function in a digital world." If the growth market for community colleges proves to be, as predicted, serving more and more students who are already employed full-time, many already holding undergraduate and graduate degrees, and who have vastly different learning needs, styles, abilities, and availability, then there is also a high probability that much of our course delivery, scheduling, and credentialing will also change to suit the needs of this new market, as will the content of what we teach. To make such a fundamental transition, we

need to do a great deal more than just buy computers with the latest high-speed multi-media chip, or the latest network software release; we need to do more than just install the newest interactive distance learning lab, or make Internet access available. We need to make a huge investment in professional development, training, and staffing. We need to restructure existing staffing arrangements. We need to provide re-training for staff whose roles have become obsolete. We need to fund technology maintenance expenses so that the technology we depend upon becomes reliable. And, most importantly, we need to make a plan that envisions where we are headed and lays a course to get there.

New Competitors in the Community College Market

The emerging forces of the Information Age portend uncertainty and change for higher education generally. But for community colleges, these developments pose unique concerns. Competition from private sector corporate training programs could erode a continuing education market community colleges presently serve if they are not able to offer training on the newest equipment with the latest software. Recently, proprietary training schools are looking like good investments to Wall Street fund managers. Proprietary institutions see money to be made providing targeted training in everything from developmental education to aviation technology, and they bring great resources and skill to the promotion and delivery of these programs through high-impact marketing and extensive use of information technology. Virtual universities, and real ones as well, are offering everything from freshman composition to entire degree programs via distance education media. These programs present new competition for community college general education courses and bachelor's degree transfer programs. Self-help instructional programs available on CD/ROM disks from any neighborhood computer supply store present a short-cut alternative to community college Office Technologies programs which typically operate on a two-year completion cycle and offer courses only on a fifteen-week semester schedule. And, not least, a veritable host of learning alternatives that are available via the Internet give new choices to students who typically attend community colleges. These Internet alternatives may well convince a significant percentage of the traditional community college market to elect a nearly no-cost home-schooling approach to their education in place of community college attendance.

Current Funding Limitations

At the same time that new competitors are emerging and the costs of remaining at the state-of-the-art are increasing, the national full-employment economy has contributed to a fairly persistent leveling off of community college enrollments. Community colleges in Maryland are funded by a State formula that is to a significant degree enrollment-driven. Level enrollment means that inflation costs for salaries and benefits cannot be fully funded, let alone new expenses for technology enhancements. And, in what seems an almost perverse development, recent declines in the inflation rate that have permitted stock and bond prices to rise and interest rates to fall have also contributed to a decline in tax revenues for local governments. Assessed values of real estate have been flat or declining. Local tax revenues, which are heavily dependent upon the property tax, have also been flat or declining. So, at a time when the federal budget deficit is the lowest in forty years and State revenues from income

taxes are recovering, local government revenues have been hurt badly by stable or declining property values. Community colleges in Maryland receive about one-third of their funding from local governments. A decline in local property tax revenue results in no increase in operating budget support for community colleges, even to cover the cost of inflation. With flat funding at the State and local levels over the past several years, community colleges have been hard pressed to keep up with inflation increases by hiking tuition and fees. Over a several year period of such forced economies, community colleges have had to wring out every savings possible in their operating budgets. In this context, the prospect for major new investments in advanced technologies looks pretty grim.

Public Funding Priorities. A further factor constraining funding for technology results from competition from various social policy issues that the State and local governments face. These issues include growing public funding needs for law enforcement and corrections, welfare reform programs, and tax relief for citizens at all levels of government. In Maryland, however, State funding for community colleges was increased in 1996, as a result of leadership from the Legislature, the Governor, and community college representatives in Annapolis. Nevertheless, flat enrollments have resulted in, at best, only modest increases in revenues for most community colleges. In other states, however, and among local governments, funding for higher education is taking a back seat to health care, public safety, and welfare reform. Contributing to this shift in priorities is a growing frustration among governing officials and taxpayers over perceived failures of the public education system in preparing young people for success in college or for productive employment in businesses and industry. This frustration has spilled over onto higher education in several ways, including anger among state legislators over faculty workload and productivity issues and general questioning of the value of "paying twice" for remediation programs in community colleges.

The Operating Budget Dilemma. With these factors in the background, it did not look promising for community colleges to find broad support for a program of major expenditures for new technology investments, for growing technology maintenance and operating costs, or for the increasing cyclical renewal costs for equipment that becomes obsolete in three to five years. The budget outlook seemed especially gloomy since these needs are ongoing into the foreseeable future, growing in scope, and expanding to require substantial additional expenses for technical support positions and training for faculty and staff. Until very recently, these items have not been much more than blips on the budget radar screen in most community colleges. In the mid-1990s, when chaos theory was the rage among management gurus and novelists writing about the dark side of genetic engineering, it was tempting to view this new, technological second-coming with Yeatsian pessimism: seeing things fall apart, the center failing to hold, and anarchy being "loosed upon the world."[1]

---

1 Yeats, William Butler. "The Second Coming."

Meeting the Challenge: Formation of a Technology Council

Support on the side of optimism, faith and hope arrived in the form of a book co-authored in 1995 by Donald M. Norris and Michael G. Dolence titled *Transforming Higher Education: A Vision for Learning in the 21st Century*. This little booklet took a very positive stance on the future of higher education in the Information Age. It also offered a very provocative conceptualization of the role of learning in the lives of tomorrow's student, teacher, and worker. Norris and Dolence urged that we not just strive to think "out of the box," but that we attempt to see "around the curvature of the earth"[2] to a future in which we are all perpetual learners throughout our lives. The authors predict that this emerging force will bring with it a potential full-time-equivalent enrollment of new learners three times as great as current higher education enrollments in the U.S. alone. With light-wave technology bringing instantaneous communications from across the globe to our doorstep, the potential worldwide enrollment of new learners, they believe, will be over ten times as great as U.S. higher education institutions currently enroll.

Other Sources for Optimism. Three additional sources contributed a more upbeat perspective to this vision of the community college future where the potential need for programs seemed limitless but the resources available to meet those needs seemed very finite indeed. Paul Kennedy's *Preparing for the Twenty-First Century* sees the "forces for change facing the world...so far-reaching, complex, and interactive that they call for nothing less than the re-education of humankind."[3] Kennedy concludes that a failure of governments and societies to take up this challenge can lead to a gloomy and discordant new world order, where "mere anarchy is loosed upon the world."[4] However, he argues convincingly that humankind possesses the ability to design and thus create the future and, therefore, it is just as possible that, through informed action, humankind may be capable of not merely surviving, but flourishing in the next century. The key to the puzzle about our future direction lies in the realization that governments, societies, and colleges can decide to transform themselves.[5]

A similar note is sounded by Jeremy Rifkin in *The End of Work*. Rifkin sees an emerging "social economy" that will employ millions of displaced industrial age workers in pursuits that require continuous learning and a substantial broadening of the mission of higher education. As the technology engine ramps up, Rifkin foresees change of a fundamental kind in the role played by higher education.[6]

A third source providing a positive outlook is a very intriguing book on organizational leadership by Margaret Wheatley, who applies the lessons of recent scientific research on

---

2 Norris, Donald M. and Dolence, Michael G. *Transforming Higher Education*. Ann Arbor: Society for College and University Planning, 1995, p. 3.

3 Kennedy, Paul. *Preparing for the Twenty-First Century*. New York: Vintage Books, 1993, p. 348.

4 Yeats, *ibid*.

5 Kennedy, *ibid*., p. 348.

6 Rifkin, Jeremy. *The End of Work. The Decline of the Global Labor Force and the Dawn of the Post-Market Era*. New York: G.P. Putnam's Sons, 1995, p. 292.

self-organizing systems and chaos theory to organizations.[7] Wheatley suggests that within an apparently chaotic environment, systems exhibit self-organizing characteristics that hold them together. The key feature of this behavior is the function of phenomena scientists call "strange attractors" which provide the logic for self-organization. In organizations such as colleges, or groups of them, this "logic" is provided by leadership.

A Critical Mass of Energy. These positive, hopeful approaches advocated by Wheatley, Rifkin and Kennedy provided an upbeat theoretical framework for action and an intellectual basis to engage the forces of social entropy that seemed to be threatening the natural order of our little corner of the world. In forming the Maryland Community Colleges Technology Council, we were hoping to evoke a critical mass of energy to seize and use the wonderful promise of technology to the advantage of community colleges. Rather than succumb to the conflicting forces around us, including strong competition for public funds, a temporary loss of confidence in the power of education to elevate humankind, and perplexing changes in the needs of our student markets, we made a decision to generate the necessary energy to hold our "center" together with self-understanding and focus. With optimism that community colleges could overcome the threats to our future, we embarked on a new voyage of discovery through this strange and wonderful new age that is upon us.

Need for a Community College Technology Plan

The concept of a Technology Council was an outgrowth of discussions among community college facility planners about the need to place in a broader context the issues associated with teaching and learning in an environment where information technology is ubiquitous. Rather than being "compartmentalized" into classroom media, distance learning, or facilities infrastructure issues and being addressed piecemeal by disparate segments within each college, an approach was needed that was all pervasive within individual colleges and among the 18 separate institutions statewide.[8] Although Governor Glendening had declared that one of his administration's chief goals for higher education was to establish Maryland as a national leader in information technology, across the State there was no integrating plan of action for community colleges nor a forum for focusing attention on the information age needs of all the colleges. Early in 1997, a study of distance learning funded by the Maryland Higher Education Commission, performed by Hezel Associates of Syracuse, New York, illustrated the extent of the problem. Maryland lagged behind Minnesota, Texas, Indiana, Georgia, and Virginia in several key aspects of transforming its institutions of higher education to Information Age competitiveness. For Maryland's community colleges to become full partners in the achievement of the goal of national leadership in information technology, an innovative approach was needed to bring these issues to the top of the agenda for com-

---

7 Wheatley, Margaret J. *Leadership and the New Science: Learning About Organizations from an Orderly Universe*. San Francisco: Berrett-Koehler, 1992.

8 Johnson, Steven Lee, "Community College Leadership in the Age of Technology," in *Leadership Abstracts*, Mission Viejo, CA: League for Innovation in the Community College, Vol. 10, No. 5, May, 1997.

munity colleges and to focus attention on the substantial additional funding needed to enhance and periodically renew information technology for all campuses statewide.

Technology Enhancements Needed. The enhancements to technology that are needed to offer competitive, state-of- the-art instruction and services to Maryland's citizens and businesses include statewide distance learning/video teleconferencing networks, a statewide data exchange network, significant enhancements to electronic classrooms and multi-media instruction capabilities, major upgrades to campus telecommunications infrastructure and switching equipment, and broad bandwidth Internet access. The 18 community colleges and the Maryland Association of Community Colleges have no data network for reporting and exchanging information. They are not connected through a distance learning/video teleconferencing network. They have no established organization for sharing exemplary projects or developing and conducting joint staff development and training programs. Nor do they have established standards for campus infrastructure development that would facilitate statewide interoperability of campus data and video systems. It was apparent that until the campuses were linked through such networks, community colleges would be at a severe disadvantage in becoming a key resource for attracting business and industry to the State and to their local counties, and, therefore, hard-pressed to claim a role as a significant partner with the State in making Maryland a technology leader nationally.

Formative Steps. Together with other members of the Community College Facilities Planners Council, and modeling our strategy upon previously successful efforts to address a long-standing backlog of unmet capital funding needs, we began the process of defining and articulating these problems in clear terms, gathering support for a change in the *status quo*, and seeking legitimization of a collaborative community college plan to address the problems presented by technological change. The Executive Director of the Maryland Association of Community Colleges, Kay Bienen, played a key role supporting the establishment of this new group. A few community college presidents also played key roles in the establishment of the Council, including Howard's Dwight Burrill, Garrett's Steve Herman, Catonsville's Fred Walsh who chairs the Presidents' Council, and Joe Shields of Carroll, whose vision and dedicated advocacy has earned him the respect of his peers and a role as the presidents' group liaison to the Technology Council.

Organizing Autonomous Institutions. Because Maryland community colleges are legally independent institutions with separate Boards of Trustees, achieving collective agreement to take action, especially on issues that have profound implications for the individual colleges, is a not-inconsiderable challenge. Time is needed for presidents to consult with their Trustees and to fully explore the implications of proposed changes within their individual institutions. However, in this instance, the proposal to form a Technology Council to address technology integration and funding issues was greeted with a near-universal enthusiasm that permitted the achievement of consensus very quickly. After considerable work defining the problem and outlining a strategy, the Maryland Community Colleges Technology Council was officially established by the Presidents' Council in October 1996. The Council's membership was drawn from other existing community college affinity groups, including the Instructional Deans, Data Processing Directors, Facilities Planners, Continuing Education Deans, Business Officers, Institutional Research Directors, Student Services

Deans, and State agency officials from the Maryland Higher Education Commission, the Department of Budget and Management, the Maryland Information Technology Center, and the Department of General Services' Office of Information Technology.

The Technology Council Mission

To successfully meet the challenges presented by technology-induced transformation of higher education, the Technology Council elected to pursue a strategy of collective action. The community colleges needed reliable sources of funding to help them catch up in those areas where they lagged technologically and to cover the more urgent of the enormous, reoccurring renewal investments. Articulating these needs which were common to all the colleges resulted in a growing consensus that action was needed. A sense of urgency emerged to identify technical standards to assure that technology purchased and installed will perform reliably, have extensive life cycle value, and will provide smooth interoperability over networks on campus and between campuses, and over statewide, national, and international networks. The need to integrate and share the delivery of educational services statewide while preserving the unique identity of each local institution has been a compelling argument in support of utilizing information technology to make Maryland community colleges more interconnected and interdependent.

Mission Statement. To sustain this sense of unity around a common goal, the Council developed a formal mission statement. A draft of this statement has been presented to the Presidents' Council and is currently under review by the various community college affinity groups. It outlines these goals for the Technology Council:

- Develop a technology plan addressing interoperability and connectivity issues and technology funding needs of Maryland's community colleges.
- Develop a clear vision for statewide information technology development within and among the community colleges and their community partners.
- Provide an information exchange about exemplary programs and activities that utilize information technology to improve teaching and learning, enhance student access and community outreach, and facilitate the delivery of service to students and communities.
- Identify and recommend technology-related staff development and training programs for Maryland's community colleges.

Goals of the Technology Council. Three goals were identified by the Technology Council as immediate priorities. These were to develop a technology plan for community colleges, including an assessment of technology needs at each of the colleges; to develop a clear vision for statewide information technology development within and among the community colleges; and to collaborate with the Maryland Association of Community Colleges to develop a funding strategy for the 1998 session of the General Assembly.

A Vision for Technology in Maryland Community Colleges

In addition to the Mission Statement, a draft Technology Vision Statement was developed during a "visioning exercise" conducted shortly after the Council was formed. This draft has also been presented to the Presidents' Council and is being reviewed by the various community college affinity groups. The purpose of the Vision Statement, printed below, is to clearly define what Maryland community colleges want technology to do for their students, faculty, staff, and communities. The Council's technology plan will be designed to make this vision a reality.

Draft Technology Vision Statement

What We Want Technology to do for Students

Improve learning by:

- personalizing instruction
- providing more choices of what and how to learn
- facilitating self-directed learning
- assuring information literacy

Improve access to college for a broader audience of students by:

- removing time and location barriers
- diminishing dependence on the physical campus
- providing "just-in-time" learning and student services

Improve results by:

- preparing students to competently face workplace challenges
- enhancing flexible verification and validation of learning
- facilitating the credentialing of new "packages" of learning

What We Want Technology to do for Faculty

Support and improve instruction by:

- enhancing teaching quality
- improving productivity
- expanding access to "smart classrooms"
- facilitating delivery of instruction to multiple locations in varying modes

Elevate the teaching role by:

- reinforcing the functions of designer/manager/monitor/credentialer of learning rather than dispenser of information

- facilitating the integration of new knowledge into the curriculum
- enabling faculty to be learners as well as teachers

Enhance faculty development and collegiality by:

- providing faculty with anytime and anyplace access to internal college data, external information resources, and colleagues

What We Want Technology to do for Staff

Enhance productivity by:

- broadening access to staff development and growth opportunities
- freeing staff from routine work

Improve the quality of services by:

- tailoring services to student and faculty needs
- providing services anytime, anywhere regardless of funding source
- removing artificial distinctions

Improve management and decision making by:

- making highly decentralized organizational structures more functional
- enhancing the ability to manage rapid change
- improving access to research and management information
- expanding budgeting and spending flexibility

What We Want Technology to do for the Community

Facilitate lifelong learning by:

- enhancing access to training, recreation, and cultural enrichment
- facilitating participation in college governance and social life
- providing an electronic information gateway to the world

Enhance economic development by:

- partnering with the college to develop and deliver education and training programs for new and existing business and industry "anytime, anyplace"
- utilizing the college as an "electronic community center" for information-based activities

Technology Needs Assessment Survey

Initially, the Council decided to limit its activities to three goals. After defining the draft Technology Vision Statement, the Council focused its activities on a technology plan and a funding proposal. The first step in the development of a technology plan was the assessment

of the current state of technology installed at the campuses and a description of technology needs over the next five years. To accomplish these assessments, a Technology Needs Assessment Survey was designed and undertaken in the spring of 1997. (The design and implementation of this survey and an analysis of the results is the subject of a companion article in this edition of the ***MAHE Journal*** by Craig Clagett.)

The survey was completed in August 1997. A report of the findings to the Council of Community College Presidents was made in mid-September. The results provide clear documentation of the staggering scope of need:

- Only 28 percent of the 16,430 personal computers in use were of current vintage. By 2003, the number of computers needed would increase by 7,000. In order to renew the computer inventory over an industry-standard three-year life cycle, the colleges would have to purchase 7,800 new computers each year.
- The requirements for upgrading and renewing faculty and staff technology readiness are an even greater challenge, including over 1,800 faculty needing distance learning training and nearly 3,000 needing training in use of the Internet and multimedia software for classroom presentations.
- Retrofit or new construction will be required for 474 electronic classrooms with multimedia capabilities, 61 interactive distance learning labs, and 292 classrooms with satellite downlink capabilities.
- An additional 226 technical support staff will be needed by the year 2003.

Altogether, these and related needs such as upgrading student information systems and campus local area networks comprise a funding burden that simply cannot be met by Maryland community colleges within their existing resources. A full description of the financial implications of these technology needs accompanied the report to the Presidents' Council. The total bill sums to $95 million, counting only operating budget equipment and training expenses.

Funding Technology Enhancement for Community Colleges

The last step in the Technology Council's efforts to realize its three initial goals was the development of a funding proposal that would succeed on several levels. A number of issues have complicated this process. While the community colleges all support additional funding for technology enhancements, this is not the only funding issue on the agenda for consideration by State and local funding authorities, nor is technology funding every college's first priority. Additional funding for Baltimore City Community College is high on the priority list of the Maryland Association of Community Colleges. Modifications to the State's funding formula to address a resources imbalance for several small community colleges is also a high priority for both the Maryland Higher Education Commission and the Maryland Association of Community Colleges. Some local jurisdictions are not able to fully fund the needs of their local colleges, which would present a special problem to these institutions if additional county funds were to be required to match new State funds for technology. And yet, asking the State to shoulder the entire burden of funding technology enhancements for community colleges

runs counter to the established approach of shared State and local contributions for both operating and capital budgets. Further, the technology funding that community colleges need is for the types of expenditures that operating budgets cover, such as desktop equipment, training, staffing, and repairs. For the past several years, sufficient State capital funds have been available in Maryland to accommodate most technology-related projects that require community colleges to spend capital funds.

Reliable, Targeted Funding. One of the chief concerns of the Technology Council was the lack of a funding mechanism dedicated to technology enhancements that the colleges could count on. Capital construction projects and grant funding had been the chief vehicles through which community colleges have made progress in addressing infrastructure and equipment investments.

But these fund sources each have serious limitations. Soft money is available only sporadically, often is targeted on very specific programmatic goals, and tends to continue for only a few years. The nature of the new information technology is pervasive, interconnected, and systemic. The Council believed that *new funding must be reliable, dedicated to information technology enhancements, supplemental to existing operating budget funding, timely, and ongoing*. The Maryland capital budget process for community colleges was not structured to aid the colleges in addressing pervasive, interconnected, systemic technology-enhancement needs. Further, the capital funding process is fragmented into eighteen separate college requests and into many more individual project requests. The capital process focuses primarily on new construction of buildings and major renovation projects. It is not focused upon the transformational role that information technology will play in re-defining how a college campus will deliver learning and interact with students. Indeed, guidelines for eligible capital purchases with State bond funds specifically exclude many information technology system components. The Presidents' Council has concluded that the new funding mechanism to be developed should respond to the increasing need for operating budget funding for technology and should preserve the shared funding characteristics of the current model, yet not add to the existing local government funding burden.

A Funding Proposal. In light of the scope and size of the funding need, it would appear to be a daunting task indeed to design a model that meets these substantial financial requirements, that accounts for the colleges' own constraints, that avoids serious pitfalls of disagreement among the 18 colleges, and that will be acceptable to the Governor, State agencies, the Legislature, and to multiple local government jurisdictions. Fortunately, however, the community colleges' representative in Annapolis, the Executive Director of the Maryland Association of Community Colleges, Kay Bienen, had identified a model and was able to quickly develop a draft legislative proposal for a program that would match new, targeted State funding with private donations. This proposal, which is presently under consideration by the colleges, meets most if not all the necessary criteria to address the colleges' technology funding needs. It also appears to be politically feasible. Over a three-year period, the proposal would provide State funds to the operating budget of each community college campus to match private contributions obtained by the colleges for information technology enhancements, up to limits yet to be specified. Legislation would be required to establish the program and to provide the necessary State funds.

As of the publication date of the October 1997 ***MAHE Journal***, a decision had not yet been made to seek legislative approval in the upcoming 1998 session of the Maryland General Assembly. Nevertheless, the process toward a funding solution is well underway. Whether this or some other funding proposal is approved this year or next, the future almost certainly holds within it the beginnings of a solution to the need for a timely, ongoing funding stream dedicated to information technology enhancements that supplements community college operating budgets. During the second year of its existence, the Technology Council will move on to address the remaining goals within its mission, undertaking the design of a collaborative, decentralized, ongoing technology planning process; the development of an information exchange about exemplary programs that utilize information technology to improve teaching and learning; and the organization of a clearinghouse for staff development and training that will aid all Maryland community colleges as they experience full transformation to Information Age learning institutions.

Jon H. Larson is vice president for administration at Frederick Community College and co-chair of the Maryland Community Colleges Technology Council.

Assessing and Meeting the Technology Needs of Maryland's Community Colleges

Craig A. Clagett

Community colleges must be able to provide the technology training demanded by business and industry. This requires hardware and software commensurate with that used in the marketplace, faculty trained in their use, properly-equipped classrooms and laboratories for instruction and study, adequate technical support staff, and appropriate campus infrastructure. To determine the current state and anticipated needs in these areas, the Maryland Community Colleges Technology Council conducted a statewide survey in the summer of 1997. The survey reflected the technology plans of the 18 colleges and documented a need for $95 million to fund selected technologies over a five-year period.

Background

In October 1996, the Maryland Community College Facilities Planners Council presented *A Proposal for Enhancing Information Technology in Maryland Community Colleges* to the Maryland Council of Community College Presidents. The facilities planners described the following challenge facing the state's community colleges:

> Maryland community colleges face a major challenge posed by the rapid pace of change accompanying the emerging Information Age. Every five years, or less, a major new development cycle begins in one of the many new technologies associated with communicating information. Maintaining current state-of-the-art technology is crucial to the success of community colleges, especially as they broaden services to Maryland's business and industry community. Furthermore, to achieve currency with the state of the art in many of the newer information age technologies, Maryland's community colleges need to make substantial expenditures to upgrade campus telecommunications infrastructure and equipment, classroom and laboratory instructional technology, and training for faculty and staff in the use of these technologies.

> To successfully meet this challenge, Maryland community colleges must have a reliable source of funding that will help the colleges catch up in those areas where they lag technologically, and that will be dedicated to funding the enormous, re-occurring investment costs associated with keeping the technology up to date.

Among the initiatives advocated in the proposal for prompt action were creation of a statewide technology affinity group, administration of a statewide technology needs assessment survey, and development of a statewide community college technology plan and funding strategy. The council of presidents approved these initiatives.

The first meeting of the Maryland Community Colleges Technology Council took place February 20, 1997, at Catonsville Community College. The Council membership of 14 included facilities planners, institutional research directors, data processing directors, a business officer, continuing education deans, instructional vice presidents and deans, and a student services dean. Ex-officio members included representatives from the Maryland Higher Education Commission, Maryland Department of Budget and Management, and the Maryland Information Technology Center. Dr. Joseph F. Shields, president of Carroll Community College, represented the community college presidents on the Council. The Council co-chairs were Jon Larson of Frederick Community College and Joseph White of Montgomery College.

During March, April, and May, four subgroups of the Council drafted questions for a statewide community college technology needs assessment survey. The questions were compiled into a 15-page questionnaire, with five sections covering instructional technology, intercampus networks and distance learning initiatives, technology support, administrative systems, and campus technology infrastructure. The questionnaire was finalized in early June. On June 13, 1997, questionnaire packets including guidelines for completion were mailed to the presidents of all 18 Maryland community colleges.

During July and August, responses from the colleges were entered into a file for analysis. Response frequency tables were reviewed by several council members for evidence of consistency in question interpretation. A final report of the survey finding was presented to the council of presidents at their September 19, 1997 meeting. Highlights from the survey follow.

Personal Computer Inventory

As of July 1997, the 18 Maryland community colleges were using 16,430 personal computers on their campuses. A total of 4,639, or 28 percent, were current technology, defined as having a Pentium 133 (or equivalent) or faster processor. Thus seven in ten computers were already out of date, a generation behind the technology used in business.

To meet planned facilities expansion and anticipated enrollment increases, the 18 colleges identified needs for nearly 7,000 additional computers, with over 90 percent needed for instructional purposes. Together with the existing inventory, the colleges collectively would compile a personal computer inventory of over 23,000 computers by the year 2003 if current

plans were fulfilled. More significant than the monies needed for this growth, however, was the implication of the *replacement costs* necessary to keep this inventory up to date on a continuous basis. Personal computer technologies become obsolete every three years, and community colleges must keep up with the market to fulfill their mission of preparing a capable, well-trained workforce meeting the needs of business and industry. A three-year replacement cycle would imply purchase of 7,800 computers annually.

Anticipated Personal Computer Inventory, Statewide, 2003
Maryland Community Colleges

	Instruction	Administration	Total
Existing inventory	11,599	4,831	16,430
Additional PCs needed	6,406	568	6,974
Total anticipated inventory	18,005	5,399	23,404

Faculty Training

Equal to or greater than the challenge of maintaining hardware and software currency, however, may be the human resources challenge. Community college faculty, both full-time and adjunct, must be fully trained in the new technologies of instruction. As of July 1997, only a few hundred community college faculty statewide were proficient in the use of the new instructional technologies associated with distance learning and multimedia classrooms. The survey found a need for over 1,800 faculty to be trained in distance learning technologies, and for nearly 3,000 faculty to be trained in using external telecommunications networks and presenting mediated information in the classroom.

Faculty Training Needs, Statewide
Total Needing Training by Year 2003

Mode of Instruction	Full-time Faculty	Adjunct Faculty
Distance learning	797	1,009
Multimedia	1,190	1,758

Electronic Classrooms

In 1991-92 a state study *(The Telecommunications Requirements of Academic Facilities)* asserted that, "all instructional spaces should be designed to allow faculty members to utilize electronic instructional devices—computer-generated graphics, video display screens, video monitors, access to electronic networks external to the building and to the campus." In the survey the colleges identified the need to retrofit or construct 474 classrooms to meet this capability standard. In addition, the colleges expressed their needs to provide satellite down-

links to 292 classrooms, and to construct and equip 61 additional classrooms for interactive distance learning.

Electronic Classroom Needs, Statewide Total Current, Additional Classrooms Needed by Year 2003		
Classroom Capability	**Existing Classrooms**	**Additional Needed**
Distance learning (interactive video)	35	61
Multimedia	215	474
Satellite downlink	65	292

Technical Support

Maryland community colleges employed the equivalent of nearly 277 full-time employees to support instructional and administrative technologies as of July 1997. The colleges said they needed 226 *additional* full-time staff to adequately support the technologies they envisioned using in the year 2003.

Technical Support Staff Needs, Statewide Total Current, Additional FTE Staff Needed by Year 2003		
Technology Supported	**Currently Employed**	**Additional Staff Needed**
Administrative networks	78.5	59.0
Interactive video/distance learning	38.0	58.0
Multimedia classrooms/laboratories	160.3	109.2
Total technical support staff	276.8	226.2

Administrative Systems

Members of the Technology Council agreed that campus administrative systems should be fully integrated, maintained on a relational database, run on client-server platforms, year 2000 compliant, and accessible by a Web browser. None of the 18 colleges met this standard in July 1997. Less than half of the colleges reported integrated systems or full use of relational databases. Only five colleges had all their systems ready for the year 2000. Only three had transitioned to client-server platforms. Administrative systems were Web-enabled at only one campus. Council members also advocated increased use of electronic interfaces for administrative functions, yet with the exceptions of payroll direct deposit and student transcript distribution, electronic transactions were rare.

Infrastructure

Effective use of technology requires an appropriate campus infrastructure. A majority of community college campuses had all buildings connected to a fiber optic backbone, administrative and faculty offices connected to the Internet, and remote locations linked to the main campus via a wide area data communications network. Less than half, however, had network access in all classrooms and laboratories. Only ten had conduit adequate for campus needs through the year 2003. Only seven reported adequate fire detection, security, or energy management networks. Respondents at six colleges reported a need to upgrade campus telephone systems.

Estimated Cost over Five Years

To calculate the magnitude of the financial challenge associated with these technology needs, estimated unit costs were developed for personal computers, faculty training, electronic classrooms, and support staffing.

The average cost of a personal computer now installed in a Maryland community college is $1,500. The estimated cost for a new mid-level computer, with a 166 MHz processor, 32 MB RAM, 2 GB hard drive, 15" SVGA monitor, network card, keyboard, and mouse, from a first or second tier manufacturer (e.g. IBM, Compaq, Gateway) was set at $2,500.

The cost of training a full-time faculty member in the new technologies of instruction equals the cost of hiring adjunct faculty to cover their course sections, plus the actual cost of training. Training a full-time faculty member in multimedia instructional techniques was estimated to cost $12,000. Training in distance learning technologies was estimated to cost approximately $6,000 per faculty member.

The cost of construction or retrofitting a multimedia classroom with a high level PC, various TV, accelerator, and voice cards, modem, videodisk player, videocassette recorder, fixed overhead camera, LCD projector, screen, cabinetry, and installation, was estimated to be $19,000. The cost of constructing or retrofitting an interactive video distance learning classroom including two large video monitors, two cameras with zoom lenses, three microphones, two speakers, remote control, pen pal tablet, one Visual Presenter, keyboard, CODEC, audio mixer, multimedia PC with SCSI, FAX machine, speakerphone, surge protector, electronic white board, Scan-It box, wireless microphone, network card, SCSI zip drive, wireless mouse, and cabinetry was estimated to be $85,000. For a campus already possessing a receiving dish, the cost of installing a satellite down link to a classroom, including two monitors, mounting, FAX machine, telephone, and cabling, was estimated to be $4,000. To install a satellite downlink to a classroom on a campus without a receiving dish would require a three-meter receiving dish, interface unit, and mounting in addition to the above classroom equipment for a total estimated cost of $10,000. Four colleges did not have downlink capability in July 1997.

The salary cost of technical support staff, including local area network administrators, data communications and networking specialists for local and wide-area networks, PC hardware and software support technicians, and computing help center staff, would range from $25,000 per year for entry level staff with associate degrees to $45,000 per year for senior staff with bachelor's degrees, professional certifications (e.g. CNE, MCSE), and five years experience. Adding 30 percent for benefits, the estimated costs per support staff would range from $32,500 to $58,500. Assuming three entry-level for every senior-level technology support employee, the cost estimate used below for technical staffing was $39,000 per employee.

Applying these estimated unit costs to the needs identified in the survey permitted calculation of the total expenditure required to fulfill these selected technology needs of Maryland community colleges over the next five years. For purposes of cost estimation, the raw data from the survey were rounded down to emphasize their tentative nature and to yield a conservative estimate of the funding challenge. Training of adjunct faculty was omitted, as getting the current full-time instructional staff technology-literate by the year 2003 seemed formidable enough. The satellite downlink estimate included single receiving dishes at four campuses currently without such capabilities. As support staffing would be incrementally increased over time, for cost estimating purposes this item was conservatively priced by the Council at the recommended staffing level for one year.

An estimated $95 million dollars are needed over the next five years to meet the personal computer, faculty training, electronic classroom, and technical support needs of Maryland's 18 community colleges. Individual campuses may need additional funding for infrastructure and administrative systems. The $95 million estimate is derived as shown in the following table:

Estimated Cost of Selected Technology Needs
Equipment, Training, Classrooms, and Staff Needed by the Year 2003

Technology Need	Quantity Needed	Unit Cost	Total Cost
Personal computers	23,000	$2,500	$57,500,000
Faculty trained in multimedia	1,000	12,000	12,000,000
Faculty trained in distance learning	800	6,000	4,800,000
Multimedia classrooms	400	19,000	7,600,000
Interactive video classrooms	50	85,000	4,250,000
Satellite downlinked classrooms	250	4-10,000	1,024,000
Technical support staff (one year)	200	39,000	7,800,000
Total cost through year 2003			$94,974,000

Craig A. Clagett is director of institutional research and analysis at Prince George's Community College and a member of the Maryland Community Colleges Technology Council.

The Maryland Community College Research Group: 1972-1997

Hershel Alexander

Introduction

The Maryland Community College Research Group (MCCRG) was formed in 1972 with the adoption of its constitution and bylaws. This article chronicles the history of MCCRG since then, highlighting its efforts to inform community college policy through excellence in the collection, analysis, and application of data. Based on personal interviews and written records, this history presents the contributions of MCCRG under five headings:

Meeting Regularly to Socialize Members into a Research Culture

Helping to Establish and Maintain Statewide Data Systems

Accepting Opportunities to Address Policy

Providing Support to Other Higher Education Organizations

Giving Rise to Community College Leaders

An effort has been made to present a comprehensive account of the organization, but the article omits certain anecdotes, stories, tales, and vignettes of MCCRG lore in favor of a broader examination of MCCRG contributions to Maryland higher education. Over the years, a variety of community college affinity groups have formed in the state. Although these organizations have made many contributions to postsecondary efforts in Maryland (both individually and cooperatively), this narrative focuses on the contributions of MCCRG.

Meeting Regularly to Socialize Members into a Research Culture

Among the achievements of MCCRG has been the tradition of meeting regularly to instill and to reinforce in members what constitutes good institutional research. Pat Haeuser (formerly director of institutional research at Anne Arundel Community College) has characterized this contribution as the socialization of MCCRG members into a research culture. Some historical context underscores the significance of this socializing role of MCCRG. During the 1960s, federal and state agencies established the first computerized higher education data bases. These efforts gave rise to national organizations such as the Association for Institutional Research (which held its first Annual Forum in 1961 and elected its first president in 1965). Yet no statewide organization arose in Maryland for a number of years. In this vacuum, Maryland institutional researchers explored how to ensure that higher education data would be utilized in a reasonable manner on campus as well as off campus. Thomas Sepe (formerly director of institutional research at Harford Community College) explained the rationale for organizing institutional researchers as follows: "Data have a certain integrity and context."

Prior to the creation of MCCRG, Robert Gell (formerly director of institutional research at Montgomery College) had hoped to unite institutional researchers from all public and private campuses in Maryland. Outside of the two-year segment, there were reservations. Some individuals reasoned that collaboration among institutions with differing missions might not be as productive as hoped, and at least one senior institution considered certain out-of-state institutions to be more appropriate peers for institutional research purposes than in-state institutions. As a result, a statewide institutional research group encompassing all segments of Maryland higher education did not form during this period. Neither were institutional research groups created for private campuses or senior public campuses.

Under these circumstances, institutional researchers from six community colleges met informally in fall 1970: Richard Behrendt (Hagerstown Junior College), Robert Gell, Manuel Goldstein (Community College of Baltimore), Paul Larkin (Prince George's Community College), Cheryl Opacinch (Catonsville Community College), and Thomas Sepe. The immediate impetus for their meeting was the pending creation of statewide community college data systems under the newly authorized State Board for Community Colleges (SBCC). These institutional researchers wondered whether SBCC would be part of a state culture that had not appreciated the role of community colleges in Maryland higher education. In one story from the 1970s, a state official responded to difficulties in collecting community college information by exclaiming, "Call an assembly, and pass out cards!" Given the variety of day, evening, weekday, weekend, on-campus, and off-campus course locations, the suggestion was taken as typical of how little community colleges were understood. In another story from the 1970s, the state calculated the average community college faculty salary in Maryland by summing the mean institutional faculty salaries and dividing this sum by the number of institutions. Educating individuals about the appropriateness of statistics (such as weighted and unweighted means) has been an on-going function of MCCRG.

These six institutional researchers founded the Maryland Community College Research Group in 1972. According to the MCCRG constitution and bylaws, the purposes of the organization were:

- to provide for the dissemination of information and the interchange of ideas in areas of common interest;
- to provide for professional development;
- to foster a spirit of unity and cooperation among persons having interests and activities related to institutional research.

These goals were served through a constitution and bylaws that required meetings to "be held on a regular basis." No specific number of yearly meetings was specified. Since 1972, members have met almost every month of the academic year, with the location of each meeting rotating among institutions. Over the years, the typical meeting has had three components: presentations, business, and lunch.

Presentations have tended to address research projects from individual campuses, such as economic impact studies, enrollment projections, environmental scanning, student retention, graduate follow-up surveys, program evaluations, and student services studies. Participants have frequently viewed these presentations as some of their best training in how to analyze and present information. Occasionally, presentations were most notable for their humor. One year, actual enrollment at Allegany Community College was nearly identical to projected enrollment. When MCCRG met at Allegany, Roger Andersen (director of institutional research and development) talked about how projections can be so fraught with uncertainties that forecasting becomes a game of chance. To illustrate this point, he spun a bingo wheel with various projection figures. In the late 1980s, another MCCRG presenter placed a crystal ball, a pair of dice, and a Ouija board on a table labeled, "enrollment projection methodologies."

Reactions to presentations could be lively. One tale involved a founding member (and future community college president) throwing paper airplanes in response to one talk. David Hemenway (formerly director of institutional research at Harford Community College) used the phrase "no blood, no foul" to characterize feedback to presentations: Little was held back. There seems to be consensus that critique has been more subdued in the 1990s than in previous years, although recent presentations have continued to serve MCCRG professional development efforts. One memorable session involved a fall 1994 joint paper by the staff at Anne Arundel Community College, Charles County Community College, and Howard Community College about student services surveys that had been administered at each institution. Because of their ability to highlight inter-campus as well as intra-campus issues, joint papers have been favorably received. But since MCCRG has tended to advocate sensitivity to local context, joint papers have been based often on projects that involved similar rather than identical methodologies.

The business portion of each meeting has typically addressed state reporting and policy issues. Over the years, MCCRG has sought ways to work with Annapolis while maintaining independence. This emphasis on autonomy within the context of a collaborative relationship with the state has shaped the culture of MCCRG from the beginning. A question on the 1980

MCCRG membership survey asked, "What do you see as the role or mission of the MCCRG?" One member responded:

> The reason for its founding was an anticipation of increased state power. It was felt by the first members that an association was needed to make sure local and individual initiative could happen, not just taking orders from Annapolis, as to what information gathering and analysis would occur. In its history, the group has as a matter of policy emphasized the need for more information analysis, rather than more and more data gathering at the state level.

This quote illustrates the MCCRG insistence on the importance of local context. On occasion, MCCRG has shown more confidence in individual campuses than in proposals generated by multi-campus MCCRG subcommittees. During the mid 1990s, MCCRG members could not agree on a single, statewide methodology to forecast enrollments at each community college. Proposals that had been considered included models by state officials as well as models recommended by a MCCRG subcommittee. Although the Maryland Higher Education Commission (MHEC) recognized that the state lacked the staff resources or local knowledge to make projections as accurately as some campuses could make, MHEC insisted on applying a single methodology to each community college. In response, MCCRG minutes record members reserving the right to conduct individual campus enrollment projections and asserting the right to appeal state enrollment projections. (As an historical aside, state funding used to be based on enrollment projections. Once actual enrollments were confirmed, adjustments were made: a campus would owe the state money or the state would owe the college money. In one year, projected enrollments for a community college were so much above actual enrollments that the institution had to lay off staff to reimburse the state. Since then, state funding has been based on actual enrollments.)

Lunches have been another way to socialize members into the community college research culture. Many members have found these lunches useful for asking questions that would have been awkward during the business session, such as questions about the economic, political, or social context of issues. For years, the willingness of colleagues to talk freely and to keep matters confidential has been a point of pride among MCCRG members. These lunches have been held on campus and off campus, depending on the inclinations and finances of the host institutions.

That MCCRG has met monthly for 25 years is persuasive testimony of the value of MCCRG meetings. Yet there were growing pains as the organization evolved. The 1980 membership survey asked, "What do you feel are the major weaknesses or needed areas of improvement of the MCCRG?" Among the responses was that an institutional research director from the 1970s and early 1980s would "...bring these off-the-wall speakers in to talk on some cockamamie subject—better screening is necessary." Moreover, this member failed to announce guest speakers in advance and gave talks by presenting page after page of data in a manner "that would cause eyes to glaze over." Another MCCRG member was noticeably uninformed (although vocal) at meetings. This person was later discovered to have submitted falsified academic credentials, an episode that emphasized the importance of official transcripts in the mind of at least one MCCRG member (and future community college president). Since MCCRG has had mostly strong members, these two tales have become

classic exceptions to the rule. Over the years, the emphasis of MCCRG meetings on hands-on professional development opportunities has been cyclical. When significant time was spent on state issues, the call for hands-on activities (such as for presentations) tended to increase. An on-going challenge to the organization has been ensuring the integration of distant MCCRG members. In 1997, Terry Rephann (research assistant at Allegany College) suggested that MCCRG explore tele-conferencing technology. The creation of the Maryland Interactive Distance Learning Network may make this option possible.

While MCCRG has been a key participant in many significant state community college policy issues (as the next two sections will document), MCCRG's socialization role has included its fair share of fun. However, some long-time members have suggested that the group has lost some of its "zany personality." During a 1997 MCCRG meeting at Charles County Community College, two participants in a computer network demonstration threw stress balls at each other. A senior member in attendance has explained that "everybody" would have thrown balls had the presentation occurred in the 1980s. Many MCCRG members from the 1980s recall how a Maryland community college president ran away from campus (without notice and not to return). During the MCCRG meeting that was held on campus soon thereafter, members walked around the administration building with bags on their heads asking, "Am I your president?" Other members recall riotous rides in the Frederick Community College van to MCCRG meetings farther west. During the early 1990s, MCCRG held two overnight conferences at Great Oak Landing at Mears Point on the Eastern Shore. Much business was conducted, and people such as Jim Palmer (editor of the *Journal of Applied Research in the Community College*) made informative presentations. But for many individuals, the most vivid memories were of intense basketball games in the water off the side of David Hemenway's sailboat.

Helping to Establish and Maintain Statewide Data Systems

Along with other community college affinity groups, MCCRG helped state officials establish and maintain several statewide data systems. For the sake of exposition, this history is divided into the period before and after the dissolution of SBCC. Since SBCC was a coordinating body and not a governing agency, SBCC could not mandate to community colleges. Nevertheless, a symbiotic relationship developed between MCCRG and SBCC. A discussion of this collaboration appeared in the article "t-Test for Two: A State-Local Research Partnership" in the winter 1990 issue of *New Directions for Community Colleges*. The authors who provided MCCRG and SBCC with this national audience were Daniel McConochie (then SBCC director of planning and research) and James Tschechtelin (then SBCC executive director and previously director of institutional research at Harford Community College).

For nearly two decades, MCCRG worked with SBCC and other community college affinity groups (especially the Association of Data Processing Directors of Maryland Community Colleges) to establish many statewide data systems, including the Graduate Follow-up Survey (early 1970s), the Enrollment Information System (late 1970s), Program Data Monitoring System (late 1970s), the Degree Information System (early 1980s), and the Student Transfer System (late 1980s). Throughout these years, a major focus was to standardize

the definition of variables, such as highest degree earned, grade point average, and credit hours earned. As Thomas Sepe has explained, "We were going to be consistent in the data sets to be as fair and reasonable as possible." To ensure compliance with federal privacy laws from the 1970s, MCCRG recommended scrambling student social security numbers on data tapes that were submitted to the state. Every community college would use the same scrambling algorithm, allowing personnel with authorized knowledge of the algorithm to track transfers among state institutions. This solution addressed privacy issues while permitting unprecedented responsiveness to local and state information needs.

Most statewide data systems that the MCCRG-SBCC partnership created continue to exist, although there have been modifications. For example, the Graduate Follow-up Survey used to be part of a data system that included a First-time Student Survey. This second instrument provided information about first-time students that had not been readily available from other sources. Originally, the First-time Student Survey was administered annually. Given the cost of surveying, the form became biennial. In later years, the creation of the Enrollment Information System, the Degree Information System, and the Student Outcome and Achievement Report made accurate characteristics of first-time students more accessible than before. Given the diminished need for survey estimates of student characteristics, the First-time Student Survey was eliminated in the late 1980s.

After the dissolution of SBCC, MCCRG helped to maintain the data infrastructure that had been established in the 1970s and 1980s. Although MHEC assumed administration of SBCC data systems, the transition was not as smooth as some MCCRG members might have wished. One concern was the increased difficulty in getting responses when institutions wanted to use state databases. The databases that MCCRG had worked so hard to create were still collecting information from the campuses, but the information was not being returned to the campuses for analysis as quickly as had been hoped. In addition, MHEC ceased publication of the annual SBCC *Databook*, a document that is widely regarded as one of the great achievements of the MCCRG-SBCC partnership.

Every year since the early 1970s, institutional researchers at each campus had submitted figures for the *Databook*. The publication contained around 100 pages of tables and text about college enrollments, financial aid, degrees and certificates, revenue and expenditures, college personnel, physical facilities, and evaluation and accountability indicators. A typical table displayed figures for each community college as well as for the community college system overall. To place data in context, multi-year trends were common. James Tschechtelin explained the purpose of the databooks as follows:

> Our intent is for the *Databook* to be useful to members of the General Assembly, agencies of the Executive Branch, college personnel, students, and the public at large. To the extent that this report captures the essence of community college services to the people Maryland, it will have achieved its objective.

MCCRG members were instrumental in maintaining this annual community college reference. After the Maryland Association of Community Colleges was organized to lobby for the two-year campuses, MCCRG advocated the publication of a MACC *Databook*. Ronald Heacock (then director of institutional research at Howard Community College), David He-

menway (then director of institutional research at Harford Community College), Toby Milton (director of institutional research at Essex Community College), and other MCCRG members spent one weekend over a laptop to establish the format for this new reference. The resulting work borrowed generously from the SBCC *Databook*. The tables included college enrollments, degrees and certificates, revenues and expenditures, college personnel, and physical facilities. Only the SBCC sections on financial aid and evaluation/accountability indicators were excluded. (In addition, text did not accompany tables.) David Hemenway described the commitment of MCCRG members to the project as follows: "They would not let the old *Databook* die." There is general agreement that the MACC *Databook* represents one of the best examples of MCCRG teamwork and initiative. But because much of the MACC *Databook* comes from SBCC data systems that MHEC maintains, each MACC *Databook* contains an acknowledgment that it "has been produced in cooperation with The Maryland Community College Research Group and The Maryland Higher Education Commission."

The establishment and maintenance of statewide data systems provided MCCRG as well as the state with new opportunities to address policy information needs. The MCCRG focus on making institutional research relevant to campus and system-wide concerns was documented by Margaret Bartow (nee French) (formerly director of institutional research at Chesapeake College) in her 1989 dissertation, *A Study of Faculty and Administrator Institutional Knowledge for Participatory Decision Making: The Maryland Community Colleges*. Bartow compared campus perceptions against factual data that had been collected as part of state reporting systems. Respondents attributed their institutional knowledge most frequently and most emphatically to institutional research offices. In addition, faculty and administrators praised the objectivity, quality, reliability, and responsiveness of institutional research offices (four community colleges participated in the study: Anne Arundel, Dundalk, Howard, and Prince George's). A revealing anecdote about the achievements of MCCRG involves a paper that Bartow wrote as an intern at SBCC in spring 1985. Her initial hypothesis was that SBCC used affinity groups such as MCCRG to accomplish tasks that SBCC could not mandate (being a coordinating agency and not a governing agency). During her internship, Bartow began to believe the reverse — that MCCRG used SBCC to influence the state! But the best and most common description of the MCCRG-SBCC relationship is that it was mutually beneficial.

Accepting Opportunities to Address Policy

From the beginning, MCCRG members have accepted opportunities to address educational policy. Founding MCCRG members studied issues that seemed important to them, regardless of whether the issues seemed important to Annapolis, Washington, or other people on campus. Thomas Sepe has noted, "We just did stuff like that because it made sense." Prior to the widespread acceptance of different learning styles, Sepe conducted a study on student preferences for self-paced learning laboratories versus traditional lecture courses: Respondents were about evenly split. In a monograph for the American Association for Community Colleges, Sepe concluded that institutions should allow for both kinds of instruction. Such willingness to take research-informed policy positions has been a common trait among MCCRG members.

External Reporting. During July 1979, MCCRG issued one of its most widely distributed position papers: *The Strangulation of Institutional Researchers: Increased Regulation and Reporting*. The article was written by Roger Andersen, Richard Behrendt, and Matthew Kelly (then director of institutional research and data processing at Frederick Community College). To raise awareness about how external reporting impacted institutions and about how institutions might respond, MCCRG circulated the article among all community college affinity groups, including the Maryland Council of Community College Presidents (MCCCP). The paper was blunt in its assessment of the impact of increased externally-imposed reporting:

> To be able to adequately address these new requirements and demands from external agencies, the priorities of institutional research must change. Practical service to the institution is reduced. Internal requests and services are forced to assume a secondary role as these time-consuming and, for the most part, useless reports and requests from a college's viewpoint take up much of the valuable time of an institutional research office.

While recognizing that many college offices had external reporting responsibilities, the position paper noted that the institutional research office "is usually saddled with the vast majority of these time-consuming reports." The article cited an analysis of external reporting requirements that had been conducted by the Office of Institutional Research and Analysis at Montgomery College. This analysis (entitled *Report on Reports*) found that Montgomery College had spent 16,381 hours on external reports in fiscal year 1976, equivalent to about eight full-time staff positions. Andersen, Behrendt, and Kelly also quoted from the *State Plan for Community Colleges in Maryland*:

> A recent survey showed that each Maryland community college spends an average of six person-weeks completing regular reports for the U.S. Office of Education and the State Board for Higher Education. This does not include the time needed to prepare many other reports for the State Board for Community Colleges and the Maryland Division of Vocational-Technical Education....

The Andersen, Behrendt, and Kelly article listed recommendations to improve the state of external reporting, such as requiring MCCRG to coordinate non-federal reports, making some reports biennial, and eliminating irrelevant reports. Over the years, the coordinating role for external reports has turned many institutional research offices into the primary depositories of academic, financial, and facility information on campus. During the 1980s, the Graduate Follow-up Survey became a biennial instrument. Given little change in the findings from year to year, the expense of a yearly survey did not seem warranted. In 1996, the state eliminated the annual Discipline Cost Analysis (DCA). From its inception, the DCA had not accounted for efficiencies of size among the community colleges. In addition, the lack of sufficient revisions to the DCA made the report less and less able to reflect noncredit expenses adequately (although noncredit students represented half of all students at some institutions) or to appropriately accommodate campus innovations such as leave banking and cluster scheduling. MCCRG continues to work with MHEC to minimize reporting burdens and to focus efforts on policy-relevant data collection.

Funding. For many years, MCCRG has been involved with community college funding issues. In 1979, MCCRG published the position paper *Funding to Fit the Mission of Community Colleges in the 1980s* (authored by the following institutional researchers: David Armstrong, Montgomery College; William Campbell, Community College of Baltimore; Paul Larkin, Prince George's Community College; Lawrence Nespoli, Howard Community College; and Cheryl Opacinch, Catonsville Community College). Among the findings was that student headcounts had increased nearly twice as quickly as full-time equivalent headcounts:

> The State of Maryland employs a formula for funding its community colleges according to which most of the colleges are paid a maximum of $800 for each "full-time equivalent student" they enroll. It should be recognized that a full-time equivalent student is an abstract entity corresponding in fact to 30 credit hours of enrollment. These thirty credit hours may be taken by one student or by thirty — it makes no difference to the formula. It is clear, however, that thirty students, even when they are enrolled for only one credit hour apiece, consume more college-provided services than one student taking 30 hours. This result is due to the necessity to provide parking or some other means of reaching the campus for each student, each student must also be provided with library space and services, counseling, advising, food and health services among a host of others. In other words, colleges serve people, not FTE's. During the period from FY72 to FY79 headcount enrollment has grown by almost twice as much as FTE enrollment, indicating that more people are being served, but that state funding is not growing at a rate sufficient to support that service.

The position paper examined four classifications of funding formulas that were being discussed by MCCCP and SBCC to cover operating expenses: unit-rate, cost-based, equalization, and negotiated formulas. Unit-rate formulas provided state funding for a community college according to some unit, such as the number of full-time equivalent students. Cost-based formulas tied state funding to actual program costs (such as to instructional costs and administrative costs), while equalization formulas granted state funding according to local tax bases. With negotiated funding, the political acumen of each institution would determine the amount of state funding. After examining the funding formulas from a variety of academic, financial, and political perspectives, the MCCRG position paper identified the unit rate method and the equalization method as most likely to meet the needs of community colleges. Nevertheless, MCCRG had concerns with all four funding formula models:

> In the end, it is the achievement of mission and goals based on dollars appropriated by the State which becomes most important. Formulas are only a vehicle for distributing funds.

Since the publication of this position paper, MCCRG has continued its involvement with funding issues. In the mid 1980s, David Hemenway (then associate director of planning and institutional research at Montgomery College) made interactive spreadsheet presentations to MCCCP in which he modeled questions that community college presidents had about potential changes to the state funding formula, whereby a major concern was the distribution of money among large and small campuses. Much of this work supported efforts of the Committee on the Future of Maryland Community Colleges, an 18-member group established

by SBCC and chaired by Montgomery College president Robert Parilla. The committee's final report, *Blueprint for Quality*, advocated a new funding formula for community colleges. In 1988, the General Assembly adopted much of the committee's proposal. The new formula included an amount per FTE to address variable costs associated with enrollment, an annual base grant to address institutional fixed costs and size, and a supplemental grant to address equalization for poorer jurisdictions. Although part of the *Blueprint for Quality* recommendations, the new formula did not include annual inflation adjustments. In 1991, the legislature revisited the community college funding formula. Taking effect in fiscal year 1993, the formula distributed aid based on five factors: fixed cost grants, marginal cost grants, size factors, wealth factors, and challenge grants.

In 1994, the community college funding formula was re-examined. Since overall funding was based largely on system-wide FTE enrollment, an unintended consequence of the existing formula was that an individual college could receive less state aid even though its FTE enrollment was growing. MCCRG members involved with this review of funding were William Campbell (director of planning and institutional research at Montgomery College) and Ronald Heacock (then director of planning and evaluation at Howard Community College). In spring 1995, Heacock spent an afternoon modeling funding formulas for MCCCP. Moreover, Campbell and Heacock attended state hearings to support presidents and other individuals (such as state senator John A. Cade) who testified on behalf of a new funding formula. As a result of these efforts, state operating funding for community colleges was indexed for the first time, with the aid equal to a set percentage of the aid per FTE received by a specified group of senior institutions. The method for distributing aid was changed as well, with the wealth component and challenge grants abolished. In addition, all community colleges were guaranteed each year at least as much aid as in the prior year: The John A. Cade Community College Funding Formula realized the long-time goal of community colleges to secure higher and more stable levels of state operating support.

Continuing Education. During the mid 1980s, the SBCC under James Tschechtelin and director of continuing education Hercules Pinkney refined state reporting systems for continuing education. The last statewide continuing education survey in Maryland had been in 1982. But as SBCC described in its September 1988 *Continuing Education Outcomes* report:

> However, the survey data previously have not been incorporated into a systematic evaluation system. This report is the first step in the process of implementing an accountability tool for continuing education.

In 1986, SBCC created an eight-member Continuing Education Outcomes Committee that consisted of institutional research directors and continuing education deans. The MCCRG representatives were Craig Clagett, Patricia Haeuser, and David Hemenway. After meeting regularly for two years, the Continuing Education Outcomes Committee standardized routine state noncredit reporting systems and developed five indicators of continuing education outcomes. As listed in the September 1988 *Continuing Education Outcomes* report, these indicators were:

1. student pass rates on selected certification examinations;
2. employer satisfaction with business and industry training courses;

3. completion rates of students enrolled in courses with completion requirements;
4. student rating of the quality of instruction; and
5. student indication of goal achievement.

Information for these indicators came from a continuing education student survey and from apprenticeship training data that were available through SBCC, the Maryland Apprenticeship Training Council, and the Department of Economic and Employment Development. In addition, information came from licensing and certifying agencies. State and campus data about business-industry and vocational-technical course enrollments were used as well. Among the results of the *Continuing Education Outcomes* investigation were that 144,081 different students took noncredit courses during fiscal year 1987. Two-thirds of students attended all sessions of their courses, while nine in ten students completed their course requirements. Overall, 72 percent of students indicated that continuing education courses had helped them to meet their goals. Moreover, apprenticeship training had increased by 40 percent in two years, while headcounts in licensure/certification programs nearly doubled.

The Maryland continuing education study had state and national significance. Given that equated-credit full-time-equivalent enrollments in Maryland continuing education courses had more than doubled from 1983 to 1989 (accounting for 31 percent of state-funded community college enrollments and for as much as 50 percent of headcounts at some institutions), the dearth of noncredit information in comparison to credit information was noteworthy. This situation was commonly described as follows: "Noncredit data collection was barely beyond the shoe box stage." Based on a 1990 study by Patricia Diehl (research technician at Prince George's Community College), only Florida, Kansas, Maryland, and New York had ever completed formal, statewide noncredit studies. Florida was the lone state with an annual noncredit evaluation program. Craig Clagett and Daniel McConochie concluded in their 1991 monograph *Accountability in Continuing Education: Measuring Noncredit Student Outcomes* (AIR Professional Files series): "The Maryland and New York studies are the most comprehensive statewide evaluations of postsecondary noncredit continuing education completed to date." The Maryland study served as a model for a subsequent study in Iowa (1991), with Clagett, McConochie, and Pinkney providing on-going consultation.

Faculty Workload. Responding to concerns of the Maryland General Assembly in the early 1990s, MHEC requested information about 1992-93 faculty workloads at each community college. Given the importance of this topic, institutional researchers from most campuses met to devise spreadsheets on short notice to comply with the MHEC request. In three weeks, all community colleges had submitted data to a MCCRG workgroup that reviewed submissions for consistency in completion. The workgroup members were James Darr (director of reporting at Montgomery College), Gohar Farahani (then director of institutional research, assessment, and evaluation at Charles County Community College), and Richard Yankosky (associate dean for administrative services at Frederick Community College). After each campus had submitted its own faculty workload report to MHEC, the MCCRG workgroup combined the data into a single document. Among the findings were that 83 percent of full-time faculty taught at least 8 courses annually, that full-time faculty

typically had one course on overload annually, that full-time faculty generally instructed 21 students per course, and that full-time faculty generated an average of 547 student credit hours each year. This MCCRG report was presented in cooperation with MACC to MCCCP as well as to MHEC under the title *Report on Workload of Full-Time Instructional Faculty*. There is widespread consensus that the thorough manner in which this publication addressed state concerns helped community colleges avoid annual faculty workload reports.

Accountability. The 1988 Reorganization of Maryland Higher Education Act directed MHEC to establish accountability guidelines and reporting schedules for all state public colleges and universities. To help develop these procedures, MHEC created an Accountability Committee in 1988. Craig Clagett represented MCCRG on this committee during its two-year deliberations. Coinciding with his term as MCCRG president, Clagett helped ensure that the eventual state guidelines were responsive to the missions and capabilities of community colleges. His *Student Outcomes Performance Accountability Report* for the Prince George's Community College Board of Trustees (published in November 1988) served as an early model for the first mandated MHEC report on student outcomes.

In the mid 1990s, MHEC revised the accountability process by moving to a report card format of indicators and benchmarks submitted on spreadsheets. During spring 1995, incoming MCCRG president Richard Yankosky met weekly in Annapolis with an intersegmental workgroup to develop the new indicators. Yankosky kept MCCRG membership informed through frequent fax communications, and the evolving indicators were discussed extensively at several of the monthly MCCRG meetings. Once again, a major MCCRG contribution was to help ensure that indicators were sensitive to community college contexts (the original MHEC plan applied the same indicators to community colleges and senior institutions alike). In addition, Yankosky sent indicators to other affinity groups for review (such as financial indicators to the community college business officers). To clarify the definitions of indicators in the time-frame provided by MHEC, MCCRG members used e-mail among themselves with greater intensity than ever before. Creation of the MCCRG listserv by Wallace Knapp (director of computer services at Catonsville Community College) facilitated this electronic interaction and collaboration. Moreover, MCCRG worked with MHEC to provide for an annual review of the indicators, whereby indicators could be added, dropped, or modified as appropriate. While the initial 1996 set of indicators included 31 items, the number fell to 26 items in fall 1997.

Providing Support to Other Higher Education Organizations

MCCRG members have provided support to other higher education organizations, including the National Council for Research and Planning (NCRP), the Maryland Association for Institutional Research (MdAIR), the North East Association for Institutional Research (NEAIR), the Association for Institutional Research (AIR), and other Maryland community college affinity groups.

MCCRG members were instrumental in creating the National Council for Research and Planning. The first MCCRG president (Cheryl Opacinch) served as the founding NCRP president during 1977-79, while Robert Gell acted as the first NCRP secretary-treasurer.

NCRP was founded at the April 1977 annual conference of the American Association of Community Colleges (AACC), and NCRP remains the only national organization exclusively for researchers and planners at two-year campuses. In addition to being an official council of AACC, NCRP is an affiliate of AIR. Since AACC was primarily an association of community college presidents who were concerned with policy issues, NCRP developed into an organization that emphasized the importance of practical policy research over abstract theoretical research. The NCRP constitution identifies the following purposes of the group:

1. to provide an avenue for the NCRP membership to express themselves on matters of current and mutual concern related to the practice of policy analysis, research, planning, and information-based management in two-year, postsecondary institutions;
2. to advise the American Association of Community Colleges (AACC) and other groups on policy issues and matters related to research, planning and information-based management for two-year, postsecondary institutions;
3. to serve as a liaison between the membership and the Association for Institutional Research (AIR) and other groups concerned with policy development, research, planning and information-based management for two-year, postsecondary institutions; and
4. to promote the professional development of its members.

Other MCCRG members to hold NCRP offices include John Quinley, who was NCRP secretary-treasurer from 1989-91 (having previously served as 1983-84 MCCRG president). During 1993-94, Craig Clagett served as NCRP president. While NCRP president, Clagett helped to establish the NCRP listserv and to create the semi-annual *Journal of Applied Research in the Community College* (on which he serves as a member of the editorial advisory board). Previously, he had edited *Parameters*, the NCRP quarterly newsletter. A number of MCCRG members followed as editors of *Parameters*: David Hemenway (then director of institutional research at Harford Community College) served from 1992 through 1993, while Laurie Tripp-Heacock (then assistant director of institutional research and planning at Anne Arundel Community College) served during 1993-95. Gohar Farahani was the 1995-96 editor as well as the 1996-98 NCRP regional director for Delaware, Maryland, Pennsylvania, Virginia, Washington, D.C., and West Virginia. During 1994-96, Ronald Heacock (then director of planning and evaluation at Howard Community College) had been regional director for this area.

MCCRG members have been involved with the Maryland Association for Institutional Research (MdAIR) as well. The genesis of MdAIR lay in the interest of the national AIR to have an Annual Forum in Baltimore. As a result, AIR contacted Marilyn Brown (then director of institutional studies at the University of Maryland College Park). In winter 1986, Marilyn Brown met with Ronald Maggiore (then director of institutional research at Bowie State College). In May, these two individuals contacted Patricia Haeuser and Kathy Farnsworth (then director of institutional research at Hood College and previously with the office of institutional research at the Community College of Baltimore) about the possibili-

ties of a statewide organization that could host the Annual AIR Forum. In February 1987, these colleagues formed the initial MdAIR steering committee that convened at Bowie State College. According to Robin Huntington (MdAIR Archivist) in her monograph *Milestones and Memories: A History of MdAIR:*

> A lot of anxieties surrounded this first meeting. The Maryland Community College Research Group (MCCRG) had been a strong and active association for over 15 years, and some of its members worried that concerns of two-year institutions might be lost in the agenda of the proposed Maryland AIR if there was too much influence by the four-year institutions. Likewise, members of the four-year institutions feared being outnumbered by the community college segment, and some wondered if the strength of the MCCRG might overpower the new association.

By April 1987, the steering committee included Paul Davalli (director of institutional research at the University of Maryland at Baltimore), Samuel Helms (director of institutional research at Towson State University), and Daniel McConochie (then director of research and planning at SBCC). The first annual MdAIR conference was held on November 13, 1987 at Bowie State College. At the second annual MdAIR conference at the University of Maryland Baltimore County, MdAIR adopted its constitution and bylaws. The constitution and bylaws were drafted by Freeman Galoff (1987-88 MCCRG president) and Leonard Garlick (member of the Board of Trustees of State Universities and Colleges). The stated purposes of MdAIR echoed those of MCCRG:

> The major purposes of this Association shall be to provide: 1) for the fostering of unity and cooperation among persons having interests and activities related to institutional research in Maryland institutions of postsecondary education; 2) for the dissemination of information and the interchange of ideas on topics of common interest; and 3) for the continued professional development of individuals engaged in institutional research.

Several MCCRG members have assumed leadership roles in MdAIR. Pat Haeuser, Craig Clagett, Daniel McConochie (then director of planning and evaluation at Howard Community College), and Yun Kim (then planning, research, and grants management officer at Charles County Community College) served as MdAIR presidents in 1990-91, 1991-92, 1995-96, and 1996-97, respectively. One of Pat Haeuser's accomplishments was hosting the first Summer SIG at Anne Arundel Community College, an on-going event that facilitates professional development through special interest group sessions (SIGs). Clagett received the Marilyn Brown Outstanding Service Award at the fall 1994 Annual MdAIR Conference. Earlier, Clagett had founded *Maryland 2000: Journal of the Maryland Association for Institutional Research,* a biennial publication that he edited from 1991 through 1995.

During the 1990s, a number of MCCRG members participated in the annual conferences and governance of the North East Association for Institutional Research. In 1994, Patricia Diehl used her desktop publishing skills to create the winning entry for a new NEAIR logo. Previously, Diehl had designed the MCCRG logo and published the first three volumes of the MdAIR journal. In 1996, Craig Clagett was elected president-elect of NEAIR. Over the

25-year history of NEAIR, he was the first individual from a community college to be elected president.

MCCRG has never been affiliated with AIR, although many MCCRG members have maintained ties to the national organization. During the 1960s, Robert Gell was an early AIR member. In a 1991 issue of the *AIR Professional File* series, Clagett and McConochie published *Accountability in Continuing Education: Measuring Noncredit Student Outcomes*. In this piece, the authors synthesized the findings of the SBCC Continuing Education Outcomes Committee about the state of assessment in continuing education. They were asked to write the monograph following a panel presentation about the project at the 1989 AIR Forum in Baltimore, a panel which also included MCCRG members Haeuser and Hemenway. In an earlier 1990 issue of the *AIR Professional File*, Clagett published *Interpreting and Presenting Data to Management*. This paper reflected not only his research into effective communication, but also his years of participation in MCCRG meetings. Among his suggestions:

> Use graphics sparingly and correctly. The selective use of graphics can be a great communications aid, but they must be used with discrimination and precision. The ease of graphing produced by readily available microcomputer software has caused the proliferation of graphs in institutional research applications, often compounding the problem of information overload and reducing the effectiveness of communication.
>
> Short, concise research briefs focused on one or two research questions are usually more effective than long, comprehensive treatises when trying to influence busy decision makers.

Although *Interpreting and Presenting Data to Management* dealt mostly with issues of graphics and texts, the article touched briefly on the topic of oral communication:

> The principles of good speech communication apply to the oral presentation of data and research findings. The presentation should have a structure, starting with an introduction to catch attention, orient the audience to the subject, and establish rapport. The purpose of the presentation should be clearly established. The body of the speech should contain transitional statements to promote a smooth, logical flow. The presentation should conclude with a brief summary and a strong final point. To overcome shyness or reticence, focus on your message and think of public speaking as simply an enlarged conversation.

Individual MCCRG members have participated in AIR Forums over the years, occasionally reporting on MCCRG activities. At the 1995 Forum in Boston, Rich Yankosky, Amy Coveyou (research director of MACC), Gohar Farahani, and Jim Darr reported on the MCCRG faculty workload study. At the 1997 AIR Forum in Orlando, Yankosky represented community colleges in the panel presentation "Reengineering the Accountability Process in Maryland: The Development of Standard Performance Indicators and Benchmarks."

MCCRG's most direct support of higher education organizations has been to other Maryland community college affinity groups. In addition to the numerous examples already cited of

MCCRG members working with the Maryland Council of Community College Presidents (MCCCP), recent examples of MCCRG cooperation with affinity groups include conducting a 1995 statewide workforce training survey for the Maryland Association of Deans and Directors of Continuing Education/Community Services, and assisting with a 1997 statewide technology needs assessment survey for the Maryland Community Colleges Technology Council. At the invitation of the Maryland Association of Instructional Deans, MCCRG participated in a spring 1997 conference to review MHEC accountability indicators.

Giving Rise to Community College Leaders

A number of MCCRG members have become presidents and other high-ranking community college officials. Six former MCCRG members are known to have become community college presidents: Donald Alexander (Allegany College), Roger Andersen (Adirondack Community College, NY), Richard Behrendt (Sauk Valley Community College, IL), Robert Gell (Cecil Community College), Thomas Sepe (Mercer County Community College, NJ), and James Tschechtelin (Baltimore City Community College). Given the breadth of issues that presidents handle, there is widespread agreement among these individuals that the range of topics that institutional researchers address provided useful background for presidential aspirants. Communication skills are important as well. As James Tschechtelin has noted about lessons learned from MCCRG: "We had a joke that we should write papers so that even a college president can understand them."

Selected career snapshots illustrate that MCCRG members have followed various paths to their presidencies. Roger Andersen served as dean of continuing education and as dean of finance at Allegany College. Richard Behrendt became director of personnel and then dean of support services at Hagerstown Junior College before moving to Clark County Community College as dean of college services. Thereafter, he assumed the presidency of Lincoln Trail College. Robert Gell is the only MCCRG member to move from director of institutional research to president without any intervening positions. Thomas Sepe took his first step towards a community college presidency by becoming an assistant dean of academics at Harford Community College. James Tschechtelin had been executive director of SBCC prior to going to Baltimore City Community College.

Several MCCRG members have held other prominent community college positions. After MCCRG, Margaret Bartow spent time as the SBCC director of instructional programs, while Susan Gell (nee Bravman) became dean of instruction at Montgomery College. Lawrence Nespoli served as associate executive director of SBCC and then as executive director of the Council of County Colleges (New Jersey). Charlene Nunley (nee Wenckowski) was promoted to executive vice president at Montgomery College, and her career path is one of the stories of MCCRG lore. Nunley used to be director of institutional research at Potomac State College in West Virginia. At the invitation of the institutional research directors at Allegany Community College and Hagerstown Junior College, she attended MCCRG meetings in the early 1970s. At one meeting, she learned about the opening for an institutional research director at Howard Community College. Nunley spent five years at Howard Community College before becoming director of planning and institutional research at Montgomery College, where she advanced as an administrator and then as a professor. Given that the position

at Potomac State College was grant funded, Nunley has joked about how she owes her professional career to MCCRG. According to Nunley, the advancement of many institutional researchers has been helped by the analytic skills that MCCRG members have been able to bring to campus issues. Janet Shrout progressed from institutional research officer to dean of administrative services at Allegany.

Summary

The Maryland Community College Research Group was formed in 1972 with the adoption of its constitution and bylaws. This article has highlighted the history of MCCRG since then to inform community college policy through excellence in the collection, analysis, and application of data. The contributions of MCCRG have included socializing members into a research culture, establishing statewide data systems, addressing policy issues, supporting other higher education organizations, and giving rise to community college leaders. In cooperation with other community college affinity groups, MCCRG has helped institutions to serve their diverse constituencies as effectively as possible.

Why write an anniversary article? This article is part of an on-going process to develop the professional infrastructure of MCCRG. For external audiences, this history illustrates the sustained commitment of MCCRG to meet the policy need for sound, timely, and useful information about community colleges in Maryland. In addition, the past 25 years are a tribute to veteran MCCRG members who have shaped the organization into what is arguably the oldest and most influential statewide research organization for two-year institutions in the country. New MCCRG members should find that this piece provides historical context to many important issues. As MCCRG prepares to address the policy information needs of the 21st century, it seems fitting to pay respect to the individuals who met the policy information needs in the last quarter of the 20th century.

MCCRG Presidents

Hershel Alexander	Charles	1997-98
Arlene Blaylock	Montgomery	1996-97
Richard Yankosky	Frederick	1995-96
Robert Lynch	Catonsville	1994-95
Gohar Farahani	Charles	1993-94
Ronald Heacock	Chesapeake	1992-93
Laurie Tripp	Anne Arundel	1991-92
Koosappa Rajasekhara	Dundalk	1990-91
David Hemenway	Harford	1989-90
Craig Clagett	Prince George's	1988-89
Freeman Galoff	Cecil	1987-88
Susan Radcliffe	Howard	1986-87
Patricia Haeuser	Anne Arundel	1985-86
Margaret French	Chesapeake	1984-85
John Quinley	Harford	1983-84
Marc Goldstein	Charles	1982-83
Lawrence Nespoli	Howard	1981-82
Matthew Kelly	Frederick	1980-81
Roger Andersen	Allegany	1979-80
William Campbell	Montgomery	1978-79
Susan Bravman	Dundalk	1977-78
Charlene Wenckowski	Howard	1976-77
Robert Gell	Montgomery	1975-76
Richard Behrendt	Hagerstown	1974-75
Cheryl Opacinch	Catonsville	1973-74

Interview Participants

Roger Andersen
President ..... Adirondack Community College, NY

Margaret Bartow (nee French)
Asst. Professor of Early Childhood Education ..... Prince George's Community College

Richard Behrendt
President ..... Sauk Valley Community College, IL

William Campbell
Director of Planning and Institutional Research ..... Montgomery College

Craig Clagett
Director of Institutional Research and Analysis ..... Prince George's Community College

Gohar Farahani
Director of Planning, Research, and Evaluation ..... Frederick Community College

Robert Gell
President ..... Cecil Community College

Patricia Haeuser
Director of Institutional Research ..... University of Wisconsin-Stout

Ronald Heacock
Senior Director of Strategic Planning/Grants ..... Community Colleges of Baltimore County

David Hemenway
Director of Planning and Institutional Research ..... Eastern Connecticut State University

Daniel McConochie
Director of Planning and Evaluation ..... Howard Community College

Charlene Nunley (nee Wenckowski)
Executive Vice President ..... Montgomery College

Thomas Sepe
President ..... Mercer County Community College, NJ

James Tschechtelin
President ..... Baltimore City Community College

Richard Yankosky
Associate Dean of Administrative Services ..... Frederick Community College

References

Andersen, R. C., Behrendt, R. L., and Kelly, C. M. (1979). *The Strangulation of Institutional Researchers: Increased Regulation and Reporting*. A position paper of the Maryland Community College Research Group.

Armstrong, D., Campbell, W., Larkin, P., Nespoli, P., and Opacinch, C. (1979). *Funding to Fit the Mission of Community Colleges*. A position paper of the Maryland Community College Research Group.

Bartow, M.F. (1989). *A Study of Faculty and Administrator Institutional Knowledge for Participatory Decision Making: The Maryland Community Colleges*. Doctoral dissertation, University of Maryland College Park.

Clagett, C. A. (1988). *Student Outcomes Performance Accountability Report*. Office of Institutional Research and Analysis, Prince George's Community College, Largo, MD.

Clagett, C. A. (1990). Interpreting and presenting data to management. *AIR Professional File* (Number 36).

Clagett, C. A. & McConochie, D. D. (1991). Accountability in continuing education: Measuring noncredit student outcomes. *AIR Professional File* (Number 42).

Clagett, C. A. (1992). Group profile. In Clagett, C. A. (ed.), *Parameters*, 4. Newsletter of the National Council for Research and Planning. [An article marking the 20th anniversary of the Maryland Community College Research Group.]

Committee on the Future of Maryland Community Colleges (1986). *Blueprint for Quality*. The Maryland State Board for Community Colleges.

Continuing Education Student Follow-up Report. (1988). The Maryland State Board for Community Colleges.

Continuing Education Outcomes. (1988). The Maryland State Board for Community Colleges.

Huntington, R. B. (1993). Milestones and Memories: A History of MdAIR. In Clagett, C. A. (ed.), *Maryland 2000: Journal of the Maryland Association for Institutional Research*, Volume 2, Fall 1993, 74-79.

McConochie, D. D. & Tschechtelin, J.D. (1990). t-Test for two: A state-local research partnership. In MacDougall, P. & Friedlander, J. (eds.), *New Directions for Community Colleges*, Number 72, Winter 1990, 73-82.

Report on Workload of Full-time Instructional Faculty: Fall 1992 and Spring 1993 (1994). The Maryland Community College Research Group in cooperation with the Maryland Association of Community Colleges.

Results of the 1980 MCCRG Questionnaire. The Maryland Community College Research Group.

Hershel Alexander is senior research analyst at Charles County Community College and the 1997-98 MCCRG president.

Student Perceptions of Distance Education Techniques in an Occupational Therapy Program

Charlotte E. Exner

The rural areas of Maryland have a significant shortage of occupational therapists. Thus, individuals with developmental, physical, or psychosocial disabilities in these rural areas have less assistance in achieving higher levels of independence in a variety of daily life activities such as eating, dressing, hygiene care, homemaking, returning to work, functioning effectively in their school and other community settings, remaining in their own home despite disabilities, and engaging in recreational activities.

This shortage of occupational therapists has been an ongoing concern of health care professionals in Western Maryland for years. With the State's only educational programs for occupational therapy at the bachelor's or master's level located at Towson University, hospitals, home health agencies, school systems, and other health facilities in Western Maryland's rural counties were faced with attempting to find therapists willing to move to their area. Yet, with the nationwide shortage of occupational therapists and the tendency of therapists to remain in areas in which they obtained their educations, these efforts to attract more than a few occupational therapists to the area had not been very successful.

The staff at the Western Maryland Area Health Education Center (AHEC) were interested in addressing this problem in the context of other health care needs of the area. In a grant proposal to the U.S. Bureau of Health Professions under the Rural Interdisciplinary Training Grant category, the staff of the Western Maryland AHEC included occupational therapy as one of the four disciplines to participate in a rural interdisciplinary training initiative. This three-year grant was funded as of fall 1994 and, in addition to occupational therapy, included the disciplines of physical therapy, social work, and rehabilitation nursing. While the other three disciplines proposed training and educational opportunities for individuals already credentialed in those disciplines, we proposed to provide professional-level education in occupational therapy.

With partial support from the grant, Towson University committed to providing a part-time outreach program for the preparation of individuals to become occupational therapists either at the bachelor's or master's degree level. This program was designed to serve residents of Western Maryland who could not easily relocate to the Baltimore area, and to provide them with educational opportunities and experiences to support their practice in rural settings. Due to the distance from the Towson University campus, it was designed to be offered through use of a variety of distance education techniques such as the Interactive Video Network (IVN) system, intensive lab work on the Towson campus, intensive course work at Frostburg State University (the Western Maryland AHEC), and clinical experiences in Western Maryland.

However, since distance education is relatively new and has been used very little for professional-level preparation of students in clinically-based disciplines, research to assess this program's effectiveness was needed. Investigating the initial effectiveness of this model of education was important not only to evaluate and plan modifications for this program, but also to assist in planning any other outreach efforts by Towson University's Occupational Therapy Department. If successful, this model may be used to provide occupational therapy education for other individuals from Western Maryland and other rural areas within the State.

Literature Review

Although a growing body of literature exists in the area of distance education, few reports provide information useful in developing a program in a clinical discipline. Those found primarily were examples of distance education being used within nursing programs for nurses who lived in remote areas. Within these reports, distance education was reported as being used in programs designed for registered nurses to earn their BSN degree (Dirksen, Hoeksel, & Holloway, 1993; Viverais-Dresler & Kutschke, 1992; Sherwood, Armstrong, & Bond, 1994; Fulmer, Hazzard, Jones, & Keene, 1992). Others described programs for registered nurses to obtain graduate level education (Fairbanks & Viens, 1995; Triestman, Carr, & McHugh, 1993; Tagg & Arreola, 1996). None of these reports described the preparation of individuals to become registered nurses.

In the occupational therapy literature, only two reports of distance education technology were identified, neither of which were written prior to the development of the plan for the Outreach Program described here. One of these reports described on-going use of audio teleconferencing in a post-professional program for occupational therapists in South Carolina and in Nova Scotia (Mitcham & O'Shea, 1994). Ford (1995) presented the only description of distance education in a professional-level occupational therapy program. She described the use of the interactive TV network system through the Texas Tech University Health Sciences center located in west Texas. Ford noted that the system was used in this program for teaching, student meetings, and administrative meetings. However, the author did not address how lab and clinical issues were addressed within this program.

Program Description

Thus, we had few models to use in developing our program for the professional preparation of students in occupational therapy. Yet we needed to consider several issues in this program development, including determining the level of degree program to be offered, accommodating the potential students' need to work, providing the program at reasonable cost, and assuring students' access to faculty and resources required in an accredited program.

We decided to offer both bachelor's and master's degree program options to applicants for the Outreach Program. This decision was made for two primary reasons. First, Towson University offers both undergraduate and graduate programs that prepare students at the professional level in occupational therapy, and we had individuals interested in applying to the program both with and without bachelor's degrees. Second, by offering both programs we could assist in meeting health care needs of that area's rural population by having graduates with different levels of education.

Although the on-campus occupational therapy programs are designed to be completed on a full-time basis, full-time study did not seem reasonable given the fact that students were anticipated to need to work a substantial number of hours. Therefore, we believed it was important to design the Outreach Program to be completed on a part-time basis. The on-campus baccalaureate program is six academic semesters of full-time study after admission to the program. In contrast, the graduate program for non-occupational therapists is three years, full-time, year-round due to the fact that these graduate students complete both professional-level and post-professional-level education prior to receiving the master's degree. For the Outreach Program the curriculum was modified to be part-time and to be year-round for both undergraduate and graduate students. This resulted in programs which are approximately 3.5 years for undergraduate students and approximately 5 years for graduate students. Students were recruited and screened for the program in the 1994-1995 academic year and entered their program in fall 1995. Because the schedule is part-time, the bachelor's students will complete their program in the 1998-1999 academic year, while the master's students will complete their program during the 1999-2000 academic year.

We committed to offering a high quality program that includes lecture, discussion, lab, and clinical experiences as we do for our on-campus students. Since only one cohort of students was covered in the grant funding, we needed to consider how to offer the program in an effective and cost-controlled manner. We decided to design the program to use a mix of distance education, off-campus teaching, and on-campus teaching. This is in keeping with a notation by Davis and Yazak (1995) that "an early consideration for programs preparing distance learning activities is that of matching areas of curriculum with available and appropriate modes of delivery" (p. 297). The course delivery plan for each semester included the following elements:

1. One full course or the lecture portion of a lab/lecture course would be offered using the Interactive Video Network (IVN) system. In this way, the IVN system could be used for as much lecture/discussion content as possible, thus minimizing student travel to the Towson campus.

Western Maryland students were located in the IVN classroom on the Frostburg State University (FSU) campus, while those who resided closer to Baltimore were in the IVN classroom on the Towson campus.

2. One course would be taught in Western Maryland by either on-campus faculty traveling to that area or by hiring adjunct faculty from that area. The courses chosen for off-campus teaching generally had few equipment needs (with one exception) and could be taught in either an intensive format or by adjunct faculty from the Western Maryland area. Generally these courses are taught at the Western Maryland AHEC.

3. One full course or labs for two courses would be taught on the Towson University campus. By using lab facilities on campus, we could provide the Outreach Program students experiences with a wide variety of lab equipment and supplies but without the expense of creating labs in the Western Maryland area. The lab experiences were planned so students would have one full day a week on the Towson campus.

4. Clinical experiences would occur primarily in the Western Maryland area. This would assure exposure of the students to clinical issues and practice with rural clients and facilitate their contacts with potential employers in the rural areas of the State.

Course offerings were structured to make optimal use of faculty expertise and equipment and supplies, and to explore the use of distance education techniques without depending upon this as the primary method of course delivery. The curriculum sequence was developed to be essentially the same as the sequence for on-campus students, but with a combination of courses in each semester appropriate for the course formats described. With this design, only one faculty member had to be involved with IVN teaching each semester, which allowed for better technical support of that faculty member.

We believed that the design we developed would also allow us to have effective interaction with the students in the program, an issue raised by Shomaker (1995) who pointed out that "meaningful feedback and engagement between the learner and faculty produce reciprocal relationships and responsibilities that are at the very heart of education" (p. 136). However, we needed to assess the program from the viewpoint of the students to determine if our assumptions were correct.

Purpose of the Study

The study was designed to evaluate the first year of the program and focused upon:

1. how satisfied the students in the Outreach Program were with the various educational formats used within the program, and their recommendations for changes in these teaching-learning methods; and

2. how the students in the Outreach Program compared to similar groups of undergraduate and graduate students in the on-campus programs in

occupational therapy in terms of retention, academic and clinical performance, satisfaction with various program elements, sources of stress for the students, and sources of support for them.

This article addresses the first area, with information included regarding the Outreach Program students' satisfaction with the program at the end of the first and second semesters, and the students' sources of stress and support. Differences between the masters-level and bachelor's level students are noted where appropriate. The differences between the on-campus and Outreach Program students will be described in a future article.

Design and Methodology

Design. A survey was distributed to all students in the Outreach Program at the end of their first and second semesters in the program. In addition, I held a 1½ hour focus group meeting with the students at the end of each semester. This meeting occurred after the students had completed the written survey.

Students. A total of 20 students, all women, were admitted to the program beginning in Fall 1995. Of this initial group, 10 were admitted as graduate students and 10 were admitted as undergraduate students. A majority of the students were from the three Western Maryland counties (Washington, Allegheny, Garrett) and the areas of West Virginia and Pennsylvania bordering Western Maryland. During the first year of the program, three students withdrew. Only one withdrew due to issues surrounding distance of travel to the Towson campus. One student was added at the end of the first semester of the program. Therefore, at the end of the first year, a total of 18 were enrolled, with 8 in the bachelor's track and 10 in the master's track.

Demographic data for 17 of the 18 students in the Outreach Program are in Table 1. There were few differences between those enrolled in the bachelor's program and those enrolled in the master's program with the exception of the number of hours worked per week. Those enrolled in the master's program were much more likely to be working full-time than those in the bachelor's program.

Instruments. Two written surveys were used to collect information from the students. Students were asked to respond by indicating the degree to which they agreed or disagreed with each statement by circling one response on the Likert scale for each item. The survey that was given to both on-campus and Outreach Program students had 37 items that addressed satisfaction with various aspects of the occupational therapy program, stressors, and sources of support. The other survey, with 17 items, was given to only the Outreach Program students as it addressed the structure and teaching formats used only in the program. Spaces for comments were included in several places on both surveys.

Seven questions were used to collect information from the Outreach Program students during the two feedback sessions. These questions sought information regarding positive and negative perceptions of the various teaching strategies used in the program, the

program structure, and administrative issues; recommendations for changes in the program; and suggestions regarding continuation of the program with other groups of students.

Table 1
Demographic Characteristics of Occupational Therapy Outreach Students, by Program

	B.S. (n = 9)	M.S. (n = 8)
Mean Age in Years	29	31
Age Range	20 - 44	23 - 39
Number employed 1st semester	6	7
Mean number hours worked per week in 1st semester	23	36
Number employed 2nd semester	8	7
Mean number hours worked per week in 2nd semester	25	36
Number married	3	4
Number with children at home	4	3

Procedures. The study was approved by Towson University's Institutional Review Board. Surveys were distributed near the end of each semester during one of the class sessions. A letter explaining the study, assuring confidentiality, and describing the voluntary nature of participation was attached to the questionnaire. Students were asked to complete the questionnaire and place it in an envelope for return to the principal investigator or in a box in the occupational therapy office.

The feedback sessions were conducted by the principal investigator. A note taker was present to record comments during each of the feedback sessions.

Data Analysis. Data from the surveys were analyzed using basic descriptive statistics. Written comments from the surveys and from the feedback sessions were entered into a word processing document and examined for common themes.

Results

Descriptive statistics for Outreach Program students' responses to the survey related to perceptions of various aspects of the teaching formats used in the program are in Table 2. The students were generally positive about their experiences with courses via the IVN system. Their comfort level regarding assumption of a technical role with the system increased during the second semester. Associated with this increase in comfort was a decrease in perception of need for a faculty member's presence at the distant site. The students' comments indicated that they found the IVN system better the second semester than the first. While many reported that a course over the IVN system does not have less quality than a traditional

course, others reflected that an IVN course is not as personal and decreases spontaneity of participation. The students verbally reported that one course on the IVN each semester was acceptable but that more than this would have been difficult.

Table 2
Outreach Program Student Perceptions of Program Teaching/Learning Strategies at End of First and Second Semesters (Scale means)

	1st Semester	2nd Semester
The presence of the outreach coordinator at FSU IVN sessions was essential	3.93 (n = 14)	3.33 (n = 9)
I would feel comfortable assuming a technical role for the IVN sessions	3.33 (n = 12)	3.75 (n = 12)
The IVN sessions met my criteria for a positive teaching/learning experience	3.86 (n = 14)	3.92 (n = 12)
In general, course content was appropriate for the chosen format	4.07 (n = 15)	4.17 (n = 12)
I found weekend class times to be convenient	3.62 (n = 13)	2.11 (n = 9)
I found weekday class times to be convenient	3.29 (n = 14)	3.83 (n = 12)
I prefer the intensive full-day classroom format to two half days	4.13 (n = 15)	4.17 (n = 12)
I understand why some courses are taught via IVN and some are on campus	3.42 (n = 14)	4.17 (n = 12)
I understand why multiple settings are required for delivery of the outreach program course work	3.56 (n = 14)	4.00 (n = 12)
I have no problem with the multiple settings involved in the outreach program	3.33 (n = 15)	3.75 (n = 12)

Having some in-person contact with the faculty member teaching the course was considered important. The students reported verbally that they appreciated the fact that the faculty member who taught using the IVN system in the first semester was available when they were on campus one day a week for another course. They also appreciated that the faculty member made at least one trip to the distant site to teach there each semester. Mechanisms for contacts with the all instructors between class meetings (e-mail, telephone) were important to the students.

The students felt overall that the course content was appropriate for the format used and liked the intensive class experiences, but did not like the weekend scheduling of portions of one course during the spring semester. Their understanding of the rationale for the location of courses and multiple settings increased slightly during the second semester. During the feedback sessions a substantial difference was noted in the comments regarding course locations. At the end of the first semester many comments were made that reflected concern over the need to travel to the Towson University campus. At the end of the second semester this was not a topic of discussion initiated by the students.

Table 3
Student Satisfaction with the Outreach Program at End of First and Second Semesters (Scale means)

	1st semester (n = 16)	2nd semester (n = 12)
In general, I look forward to attending classes	4.44	4.25
I understand the relationship of the course content to the practice of OT	4.25	4.67
In general I find the course content interesting	4.31	4.33
Exams and assignments adequately assess my knowledge of the subject matter	3.94	3.92
The majority of my instructors provide helpful feedback so that I can improve my academic performance	4.13	4.17
The majority of my instructors demonstrate good knowledge of the subject matter	4.44	4.17
I am satisfied with class times	3.13	3.67
I was satisfied with my Level I clinical placements	4.20 (n = 15)	4.75 (n = 8)
In general I am satisfied with the OT program	4.07	4.08
Overall, the advantages of the outreach program outweigh the disadvantages	4.00 (n = 15)	4.08

Table 3 contains the Outreach Program students' perceptions of and satisfaction with various aspects of the occupational therapy program. The students reported satisfaction with the program overall, their instructors, and their clinical placements. The aspect of the program with which they were the least satisfied was the class times. In the feedback ses-

sion some students reflected concern with scheduling of classes during the daytime on two or three days of the week, while others found this schedule more acceptable than one with evening classes. However, regardless of this issue, almost all students believed the advantages of the Outreach Program outweigh the disadvantages. Few differences were noted in any of these areas between the first and second semesters of the program.

Data regarding the students' perceptions of the stresses that they experienced during the first and second semesters are in Table 4. The data are presented for bachelor's and master's students due to the fact that the mean number of hours worked by each group was different. In addition, the fact that the master's degree students had a greater amount of experience in college settings may affect their perception of graduate study versus that anticipated by the undergraduate students for undergraduate study.

Table 4
Bachelor's and Master's Degree Outreach Program Student Stressors at End of First and Second Semesters (Scale means)

	1st semester	2nd semester
I was prepared for the program's course work demands		
BS students	3.90 (n = 9)	4.00 (n = 6)
MS students	4.00 (n = 6)	3.33 (n = 6)
In general, I am able to cope with the stress generated by the demands of the program		
BS students	3.78 (n = 9)	3.33 (n = 6)
MS students	3.67 (n = 6)	3.67 (n = 6)
My commute to and from classes is not a significant stressor		
BS students	2.11 (n = 9)	1.17 (n = 6)
MS students	2.40 (n = 5)	2.17 (n = 6)
In general, I am able to juggle family responsibilities with program demands		
BS students	3.44 (n = 9)	3.00 (n = 6)
MS students	3.83 (n = 6)	3.67 (n = 6)
In general, I am able to juggle work responsibilities with program demands		
BS students	3.43 (n = 7)	3.33 (n = 6)
MS students	3.67 (n = 6)	3.50 (n = 6)

The graduate students reported somewhat better ability to juggle family and work responsibilities and program demands. Both groups of students noted significant stress caused by travel to and from the Towson University campus on a weekly basis. This stress increased during the second semester. The second semester included the winter months during which several snow storms occurred. In addition, the students were enrolled in the anatomy course with human cadavers and some reported feelings of stress due to their perception of the difficulty level of this course.

Table 5
Bachelor's Degree and Master's Degree Outreach Program Student Support Mechanisms Used in First and Second Semesters (Scale means)

	1st semester	2nd semester
Family		
BS students	4.22 (n = 9)	4.83 (n = 6)
MS students	4.67 (n = 6)	4.67 (n = 6)
Friends		
BS students	4.22 (n = 9)	4.67 (n = 6)
MS students	4.67 (n = 6)	4.50 (n = 6)
Spouse/Partner		
BS students	4.40 (n = 5)	5.00 (n = 5)
MS students	4.80 (n = 5)	5.00 (n = 5)
Classmates		
BS students	4.44 (n = 9)	4.67 (n = 6)
MS students	4.33 (n = 6)	4.00 (n = 6)
Instructors		
BS students	3.00 (n = 9)	3.33 (n = 6)
MS students	2.00 (n = 5)	3.20 (n = 5)
Advisor		
BS students	3.00 (n = 8)	3.50 (n = 6)
MS students	2.67 (n = 6)	3.20 (n = 6)

The increased level of stress perceived by many students during the second semester also is reflected in the increased use of many sources of support during the second semester (see Table 5). Students reported greatest reliance on a spouse/partner, family members, and friends, although bachelor's students reported relying as much upon classmates for support as upon friends. The students verbally reported that they had formed very close bonds with one another. Traveling to campus together served as an intensive time for developing relationships with classmates. The students indicated that they felt a strong commitment to supporting one another in the program. In addition, seeking support from instructors increased between the first and second semesters, particularly for the master's students.

The students provided a number of recommendations, including decreasing the amount of travel to the Towson University campus. To accomplish this and to still offer a high quality program, the students suggested that as much course content as possible be taught in Western Maryland or over the IVN system. More intensive scheduling of some courses or concentrated periods of time on campus may be preferable to the one day a week on-campus format currently being used. Additional support for the anatomy course with the human cadavers were suggested. The students indicated a high degree of support for the continuation of this program with additional cohorts of students.

Discussion

Due to the small number of students participating, study findings must be interpreted with caution. However, in its first year the Outreach Program was well received by students. The students reported satisfaction with the mix of teaching formats used and the use of multiple educational settings. They were pleased to be enrolled in a program that will prepare them to become occupational therapists without requiring them to attend courses on the Towson University campus three or more days a week.

The IVN system was well received by the students in this program. The success of this format for teaching/learning was positively affected by University support of faculty at both Towson and Frostburg who are using the system, and by the faculty members' commitment to be available to and supportive of these students.

The students' feedback suggests that one course per semester on the IVN system is acceptable, especially within the first year of taking courses using the system.

The greatest source of stress for the students was the weekly travel to the Towson campus. However, having the students on-campus one day each week allowed the students to have lab experiences comparable to the on-campus students, assured regular contact with the full-time faculty, and facilitated student access to other on-campus resources. The travel-related stress seems to have been exacerbated for the students when they were taking a particularly challenging lab course during the winter months.

Feedback from the students in written and verbal forms was used to modify elements of the program each semester. They have contributed suggestions for course delivery improvements and timing of courses. Their feedback, coupled with feedback from the faculty and administrators at Towson University who are involved with this program, suggests that ex-

pansion of this program with additional cohorts of students would be reasonable. Modification of the time on-campus, however, would seem to be a priority in development of this program as an on-going effort of the Towson University's Occupational Therapy Department.

References

Davis, A, and Yazak, D. (1995). Implementation and accreditation issues in the development of distance learning programs. *Rehabilitation Education* 9:293-307.

Dirksen, S. R., Hoeksel, R., and Holloway, J. (1993). RN/BSN distance learning through microwave. *Nurse Educator* 18:13-17.

Fairbanks, J., and Viens, D. (1995). Distance education for nurse practitioners: A partial solution. *Journal of the American Academy of Nurse Practitioners* 7:499-503.

Ford, L. J. (1995). Education knows no distance. *OT Week*, May 4, 1995, 14-15.

Fulmer, J., Hazzard, M., Jones, S., and Keene, K. (1992). Distance learning: An innovative approach to nursing education. *Journal of Professional Nursing* 8:289-294.

Mitcham, M. D., and O'Shea, B. J. (1994). Using audio teleconferencing to link occupational therapy graduate students in the United States and Canada. *The American Journal of Occupational Therapy* 48:619-625.

Sherwood, G. D., Armstrong, M. L., and Bond, M. L. (1994). Distance education programs: Defining issues of assessment, accessibility, and accommodation. *The Journal of Continuing Education in Nursing* 25:251-257.

Shomaker, D. (1995). Research in nursing distance education: Defining the elephant. *Communicating Nursing Research* 28:133-145.

Tagg, P. I., and Arreola, R. A. (1996). Earning a Master's of Science in nursing through distance education. *Journal of Professional Nursing* 12:154-158.

Treistman, J. M., Carr, K. C., and McHugh, M. K. (1993). Community-based nurse-midwifery education program. Distance learning in nurse-midwifery education. *Journal of Nurse-Midwifery* 38:358-365.

Viverais-Dresler, G., and Kutscheke, M. (1992). RN students' satisfaction with clinical teaching in a distance education program. *The Journal of Continuing Education in Nursing* 23:224-230.

Charlotte E. Exner is associate professor and chairperson of the Occupational Therapy Department at Towson University. *This study was supported by the 1995 MAHE research award. Dr. Exner thanks Sally Meyers, a graduate student in the Master of Science degree program in Occupational Therapy at Towson University, who contributed substantially in data collection and analysis for this project.*

Enrollment and Achievement of Underprepared Students: A Community College Case Study

Craig A. Clagett

Introduction

Community colleges are the great American experiment in higher education. Emphasizing opportunity through their open-admissions policies, community colleges encourage higher learning among many students lacking the basic skills, study habits, and support networks that facilitate success. Many community college students are the first in their families to attend college, and the transition to college is social and cultural as well as academic. At Prince George's Community College (PGCC), surveys suggest that about two-fifths of the college's students are first-generation students.

Students entering college without the fundamental language and computational skills to succeed in undergraduate courses typically are placed in remedial or developmental programs. The scope, locus, cost, and effectiveness of such programs have become major policy issues in Maryland. This article examines data concerning the number of underprepared students attending PGCC, enrollment in developmental education courses, and the academic progress of underprepared students.

Basic Skills Deficiencies among Entering Students

Two-thirds of the students entering PGCC in Fall 1996 who completed the placement test battery in all three skill areas (reading, English composition, and mathematics) had test scores indicating a need for remediation in at least one area. A fifth of the tested students needed remediation in all three areas:

Remedial Needs of Fall 1996 Entrants Tested in All Three Skill Areas		
Tested in all three areas	1,596	100%
No remediation needed	531	33%
Remediation needed	**1,065**	**67%**
In one area	466	29%
In two areas	270	17%
In three areas	329	21%

The proportion of students needing remediation in at least one area was 67 percent, a decline of three percentage points from fall 1995:

Percent of Entering Students Tested in All Three Skill Areas Needing Remediation in at Least One Area		
	Tested in All Three Skill Areas	**Percent Needing Remediation**
Fall 1996	1,596	67%
Fall 1995	1,866	70%
Fall 1994	1,800	72%
Fall 1993	1,913	70%
Fall 1992	1,841	71%
Fall 1991	1,923	66%
Fall 1990	2,081	60%

Two out of every three students entering PGCC need developmental coursework. Which area—reading, composition, or mathematics—is in greatest need? Since 1992, marking the implementation of the Descriptive Tests of Language and Mathematics Skills as the college's placement test battery (replacing the Comparative Guidance and Placement Tests), mathematics has been the area of greatest remedial need among entering students. At the time of test crossover from the CGP to the DTLS language tests, an effort to establish equivalent threshold scores for determining the need for remediation was made based on a regression analysis of test scores of a pilot group of students who had taken both test batteries. The process was different for mathematics. A committee of math faculty reviewed the new DTMS test, item by item, to determine what skills should be required for students entering math classes with an algebra prerequisite-requisite. Thus, the new threshold for mathematics probably reflected a changed standard.

The percentage of fall 1996 entering students needing remediation in mathematics was 57 percent, down four percentage points from fall 1995. Three in ten new students needed

remediation in reading. The proportion of students needing developmental reading has been declining steadily, though modestly, over the past five years. The percentage of new fall 1996 students needing developmental English was essentially unchanged at 36 percent.

Percent of Students Tested in Each Skill Area Needing Remediation Fall 1992-1996					
	1992	1993	1994	1995	1996
Mathematics	60% (1,996)	57% (2,090)	65% (1,963)	61% (2,034)	57% (1,758)
Reading	35% (1,919)	34% (2,029)	32% (1,954)	31% (1,988)	30% (1,878)
English	36% (1,935)	33% (2,030)	35% (1,887)	35% (1,937)	36% (1,840)

It is clear, given current score cutoffs, that mathematics is the skill area that entering students are most deficient in. Course pass rates support this, as classes in mathematics, and courses needing mathematics such as chemistry, have traditionally been the most difficult for PGCC students.

Remedial Needs of Prince George's County High School Graduates

The prior section examined placement test findings for all new entrants to the college. In this section, the developmental needs of graduates of the county's high schools are reviewed. Nearly two-thirds of the 1996 high school graduates who completed the placement test battery in all three skill areas (reading, English composition, and mathematics) had test scores indicating a need for remediation in at least one area. A fourth of the tested students needed remediation in all three areas:

Remedial Needs of 1996 County High School Graduates Entering PGCC Tested in All Three Skill Areas		
Tested in all three areas	860	100%
No remediation needed	300	35%
Remediation needed	560	65%
In one area	215	25%
In two areas	139	16%
In three areas	206	24%

The proportion of students needing remediation in at least one area was 65 percent, down two percentage points from fall 1995 and six percentage points from the all-time high of 71 percent in fall 1994:

Percent of High School Graduates Tested in All Three Skill Areas Needing Remediation in at Least One Area		
	Tested in All Three Skill Areas	Percent Needing Remediation
Fall 1996	860	65%
Fall 1995	950	67%
Fall 1994	886	71%
Fall 1993	945	68%
Fall 1992	926	68%
Fall 1991	908	66%
Fall 1990	1,037	57%

The percentage of entering high school graduates needing remediation in mathematics remained unchanged at 53 percent. The proportion of students needing developmental reading declined three percentage points in fall 1996. The percentage of new graduates needing developmental English was unchanged from fall 1995:

Percent of High School Grads Tested in Each Skill Area Needing Remediation Fall 1992-1995					
	1992	1993	1994	1995	1996
Mathematics	54% (957)	58% (976)	61% (901)	53% (989)	53% (888)
Reading	39% (944)	42% (952)	39% (899)	39% (966)	36% (887)
English	38% (941)	39% (959)	39% (896)	41% (963)	41% (882)

Enrollment in Developmental Courses

With two-thirds of entering students in need of basic skills remediation according to the college's placement testing, is PGCC becoming a remedial education institution? In terms of total instructional activity, the answer is no. In recent fall terms, 15 to 17 percent of the college's credit students have been enrolled in developmental courses. Thus, in any given semester, one in six students would be taking a developmental class.

Number and Percent of Students Enrolled in Developmental Courses Fall 1992-Fall 1996					
Developmental Courses	**Fall 1992**	**Fall 1993**	**Fall 1994**	**Fall 1995**	**Fall 1996**
One	1,455	1,560	1,524	1,538	1,326
Two	417	410	388	431	351
Three	105	105	110	122	95
Number taking developmental course(s)	1,977	2,075	2,022	2,091	1,772
College headcount	13,318	12,955	12,201	12,050	11,696
Percent taking developmental course(s)	14.8%	16.0%	16.6%	17.4%	15.2%

Among the five-sixths of the college's students not enrolled in developmental classes in a given term are students who have completed developmental, those with test scores indicating no need for remediation, and those identified as needing remediation but not currently enrolled in developmental classes. A later section of this report uses longitudinal cohort analysis to examine student coursetaking patterns and academic progress. The purpose of this section on developmental education enrollment is to document the scope of remedial instruction within the context of total college credit enrollment.

In fall 1996, 817 of the 2,244 first-time students at PGCC (or 36 percent) enrolled in a developmental education class. Most were taking one developmental course, although 78 first-time students were enrolled in three remedial classes:

Number and Percent of First-time Students Enrolled in Developmental Courses Fall 1992-Fall 1996					
Developmental Courses	**Fall 1992**	**Fall 1993**	**Fall 1994**	**Fall 1995**	**Fall 1996**
One	554	572	566	508	475
Two	298	301	277	317	264
Three	80	86	86	103	78
Number taking developmental course(s)	932	959	929	928	817
Total first-time	2,730	2,574	2,401	2,397	2,244
Percent taking developmental course(s)	34.1%	37.3%	38.7%	38.7%	36.4%

Student enrollment in developmental courses in fall 1996 generated 9,800 equated credit hours, or 11 percent of total college hours. Total developmental hours were down over 16 percent from fall 1995. Decreased hours in developmental mathematics accounted for four-

fifths of the decline. Changes in math course offerings and sequencing probably contributed to the drop. Statewide efforts to define general education competencies acceptable to all Maryland colleges and universities prompted PGCC math faculty to enhance MAT 112, so that it is now based on intermediate as opposed to elementary algebra. This meant that all students leaving developmental math must now take one of two new credit intermediate algebra courses, MAT 101 or MAT 102, neither of which satisfy the general education math requirement, prior to taking MAT 112, MAT 125, or other transfer-level math. The curriculum committee approved DVM 004 as a prerequisite for MAT 101, so students in programs other than business administration, computer science, engineering, and engineering technology (which require MAT 102) no longer need DVM 006 or DVM 007. As a result, enrollments in DVM 006 and DVM 007 dropped by over 60 percent as students enrolled in MAT 101 instead. (Developmental students pursuing technology or calculus-based programs must still complete DVM 006 or DVM 007 to enter MAT 102.) In short, many students placed into DVM 004 can qualify for credit math by completing just that one developmental course. The decline in developmental math hours was accompanied by 388 enrollments in 17 sections of the new credit course MAT 101, generating 1,164 credit hours in fall 1996.

Equated Credit Hours in Developmental Courses Fall 1992-Fall 1996

Developmental Area	Fall 1992	Fall 1993	Fall 1994	Fall 1995	Fall 1996
Mathematics	6,124	6,600	6,588	7,100	5,496
Reading	2,551	2,474	2,428	2,472	2,176
English	1,732	1,700	1,504	1,492	1,580
Learning Support	704	700	588	696	548
Total DVM, DVR, DVE, and DLS hours	11,111	11,474	11,108	11,760	9,800
Collegewide hours	96,762	94,119	87,544	87,422	87,490
Percent total hours in developmental courses	11.5%	12.2%	12.7%	13.5%	11.2%

Developmental Education and Student Achievement

How does the need for remediation affect outcomes? PGCC's research office has developed a typology of student outcomes based on longitudinal cohort analysis that summarizes the progress after a set number of years of students entering PGCC in a given fall semester. Students are classified according to the following scheme:

1. **Award and transfer**. The percentage of degree-seeking students in an entering cohort who have earned a degree or certificate from the community college *and* transferred to a four-year college or university within the study period.

2. **Transfer/no award**. The percentage of degree-seeking students transferring to a senior institution without having earned an award from the community college.

3. **Award/no transfer**. The percentage of degree-seeking students earning a degree or certificate from the community college for whom there is no evidence of transfer.

4. **Sophomore status in good standing**. The percentage of degree-seeking students who have not graduated from the community college but who have earned at least 30 credits with a cumulative grade point average of 2.0 or above, and for whom we have no evidence of transfer. Given the proportions of entering students needing remediation and/or attending part-time, reaching sophomore status in good standing represents a notable academic achievement. Probably included in this category are a number of students who have transferred to independent and out-of-state colleges or universities.

5. **Achievers**. A summary measure of the preceding four categories.

6. **Persisters**. The percentage of degree-seeking students still enrolled at the community college (as of the last term of the study period) who do not fall into any of the above "achiever" categories. They have not graduated or transferred, nor have they earned 30 credits with a 2.0 grade point average. Their outcomes are yet to be determined.

7. **Non-achievers.** The percentage of degree-seeking students exiting the community college without graduating or earning 30 credits in good standing for which we have no evidence of transfer. Included in this group are the true "dropouts" who have not succeeded in reaching their goals within the study period. Some of these students may have transferred early (before accumulating 30 credits) to independent or out-of-state colleges.

8. **Special motive**. Students who had indicated short-term, non-degree goals of personal enrichment or job skill upgrading and who attended only during the first two terms of the study period. Never intending to enter a curriculum or transfer, these students are properly excluded from attrition statistics.

The research office has used the above typology to study the progress of students entering the college in fall 1990. Of the 2,643 first-time college students entering PGCC in fall 1990, 256 had short-term, non-degree goals ("special motives") and are excluded from the following analyses. Of the 2,387 degree-seeking students, 665 or 28 percent had graduated, transferred, or attained sophomore status in good standing after four years. This achievement rate varied depending on student basic skill levels at entry to the college. Earlier research office studies had found that students needing remediation in mathematics and at least one other area—reading or English composition or both—were most "at risk" of not succeeding.

The fall 1990 cohort analysis confirmed this finding. Only 11 percent of the students identified as needing developmental courses in mathematics and at least one other area were classified as achievers after four years. In contrast, students with no developmental needs achieved at a rate of 45 percent. Adding in persisters—students enrolled at PGCC the last term of the study period—found half of the students not needing remediation successful, compared to only 20 percent of the "developmental math plus" group. Among full-time students, 56 percent of the non-developmental group—compared to 17 percent of the developmental math plus group—had graduated, transferred, or attained sophomore status in good standing within four years.

Student Outcomes After Four Years, by Developmental Need
Outcomes as of the End of Spring 1994 of Students Entering in Fall 1990

Outcome	No Developmental Needed		Developmental Math Plus	
	Total	Full-time	Total	Full-time
Award and transfer	4%	7%	<1%	1%
Transfer, no award	17%	24%	2%	4%
Award, no transfer	5%	6%	1%	2%
Sophomore W/2.0+ GPA	18%	19%	7%	9%
Achievers	45%	56%	11%	17%
Enrolled Spring 94 <30 credits/2.0	5%	4%	9%	7%
Non-achievers	50%	40%	80%	76%
Total degree-seeking students (100%)	861	536	628	281

Achievement levels varied by the number of skill areas needing remediation. Twenty-eight percent of the students needing remediation in only one basic skill had graduated, transferred, or attained sophomore status in good standing within four years of entry to PGCC. Achievement rates dropped to 17 percent for those needing developmental in two areas, and 11 percent for those needing developmental classes in all three areas of mathematics, reading, and composition. Clearly, the extent of need for developmental education influences credit accumulation and academic achievement.

Achievement also reflected student progress through recommended developmental courses. A fifth of the students initially identified as needing remediation by testing did not take developmental courses, due to early attrition, avoidance, waivers granted by counselors, or through re-testing. These students attained an achievement rate of 21 percent, compared to 45 percent for students not needing remediation. Students who took developmental courses but failed to pass them had an achievement rate of 4 percent. Students passing at least one developmental course, but not completing required remediation in any skill area, had an achievement rate of 11 percent. Fifteen percent of the students completing remediation in at least one skill area,

but not all skill areas of need, achieved. Most notably, 46 percent of the students needing remediation who completed all developmental work recommended achieved. While only accounting for 16 percent of the students needing remediation, these developmental completers achieved at the same rate as students not needing developmental courses.

Achievement After Four Years and Developmental Status
Percent Graduating, Transferring, or Attaining Sophomore Status
Fall 1990 First-time Student Cohort

	Number of Students	Percent of Cohort	Percent Achievers
Basic Skills Assessment (n = students tested in all 3 areas)			
No developmental courses needed	861	42%	45%
Developmental courses needed	**1,170**	**58%**	**18%**
In one area	390	19%	28%
In two areas	380	19%	17%
In three areas	400	20%	11%
Developmental Progress (n = students identified as needing developmental)			
No developmental courses taken	262	22%	21%
Dev. courses taken/none passed	214	18%	4%
Course(s) passed/no area completed	198	17%	11%
Some, but not all areas completed	315	27%	15%
All developmental work completed	**181**	**16%**	**46%**

Support Programs for Underprepared Students

Prince George's Community College has a number of academic support services in place to assist students, including a tutoring center, vocational support services for students pursuing occupational programs, a writing center, and computerized learning laboratories. Two programs specifically target underprepared students, the ALANA minority student retention and transfer program and Student Support Services (SSS). ALANA (African, Latin, Asian, and Native American) students are offered services such as college orientation sessions, faculty or staff mentors, visits to transfer institutions, monthly newsletters, field trips, and referrals to other campus services. Originally open to any minority student, starting in fall 1992 ALANA targeted students new to the college with basic skills deficiencies in at least two areas. Student Support Services targets low income, first generation college students and those with physical and learning disabilities. SSS activities are designed to help students build confidence in their own abilities and worth, improve their academic and personal growth, and plan their educational and career development with realism and decisiveness.

There is mounting evidence that these targeted support services contribute to student persistence and achievement. A research office evaluation of ALANA found that ALANA

participants earned as many credit hours, had higher retention rates, and were more likely to earn an award or transfer, than minority students not participating in the program. Participation was not related to student grade point averages. A study of SSS found student performance enhancements similar to ALANA. Compared to non-participating students, SSS students earned more credits and were more likely to graduate or transfer. While methodological and data limitations prohibit definitive conclusions, both studies suggest that student support programs involving sustained personal attention and multiple services can enhance the persistence and achievement of underprepared students.

Summary

Among the major challenges facing PGCC and most other community colleges is the large number of students enrolling who are underprepared for college study. While students may be "at-risk" for a number of reasons including family and employment circumstances, deficiencies in the basic skills of reading, composition, and mathematics constrain the academic progress of many community college students. This article assessed the breadth of basic skill deficiency among PGCC students, determined what proportion of PGCC instruction was devoted to developmental education, examined the impact of developmental needs on student progress and achievement, and reviewed the efficacy of student support services targeted to at-risk students. Major findings can be summarized as follows:

- Two of every three students entering PGCC in the fall need remediation in at least one basic skill area.
- Mathematics is the area of greatest deficiency, with a majority of entering students needing developmental math.
- One out of every six fall students is enrolled in a developmental class.
- Developmental courses account for 11-13 percent of total fall hours.
- Students entering PGCC with college-level skills are two and a half times more likely to graduate, transfer, or attain sophomore status in good standing than students needing developmental education.
- Students identified as needing remediation who complete all recommended developmental classes achieve at the same rate as students not needing remediation.
- Students participating in ALANA and Student Support Services persist and achieve at higher rates than non-participants.

Like many open-admissions colleges, PGCC will continue to enroll a large proportion of students underprepared for college study—but it is not becoming a remedial education institution. In a typical fall term, 15 to 17 percent of PGCC students will be enrolled in a developmental education class, and developmental education will account for 11 to 13 percent of total college hours. The real significance of the presence of developmental education is the basic skills deficiencies it signifies, and the hurdles these deficiencies place in the way of student progress and achievement. The welcome finding from the fall 1990 longitudinal

cohort analysis—that students completing all necessary remediation achieved at the same level as students not needing developmental courses—is encouraging. Similarly, the findings that the ALANA and Student Support Services programs apparently enhance student achievement suggest that college actions can positively influence student outcomes. However, only 16 percent of the fall 1990 students needing remediation completed their developmental coursework, and together ALANA and SSS are able to serve only around 500 students annually. Budgetary constraints make expansion of such programs—or introduction of promising concepts like multi-semester, cluster-scheduled, team-learning, multi-disciplinary models—problematic. The challenge of facilitating the academic success of underprepared students remains formidable.

Craig A. Clagett is director of institutional research and analysis at Prince George's Community College. A version of this article appeared in the journal of the Maryland Association for Institutional Research.

Contents

Foreword v

The Next Fifty Years of Maryland Higher Education — Edward O. Clarke, Jr. 1

Higher Education's Role in Workforce Development — Patricia S. Florestano 7

The Origins of "Entrepreneurialism" in American Higher Education — Margaret Masson and Jim Westwater 11

The Widening Gyre: Getting Ready for Information Age Learning in Maryland's Community Colleges — Jon H. Larson 16

Assessing and Meeting the Technology Needs of Maryland's Community Colleges — Craig A. Clagett 29

The Maryland Community College Research Group: 1972 - 1997 — Hershel Alexander 35

Student Perceptions of Distance Education Techniques in an Occupational Therapy Program — Charlotte E. Exner 55

Enrollment and Achievement of Underprepared Students: A Community College Case Study — Craig A. Clagett 67